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ABP ABC MPA

URBAN DESIGN AND PLANNING

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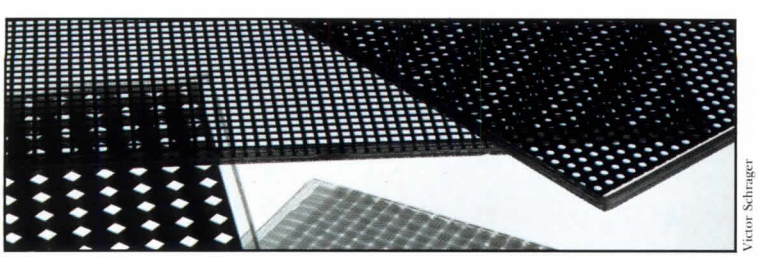
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Cover
Aerial view of Rector Place, Battery Park City (p. 86). Photo: Stan Ries.

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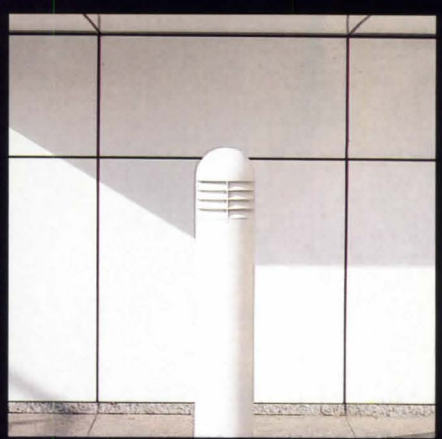
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Urban Design, Urban Policy

The return to traditional precedents in urban planning restores some laudable design principles, but some of the circumstances behind this revival raise doubts about our ability to improve the city.

ONE of the first things to be said about current urban design is that it is intended as a framework for private actions, and P/A's Thomas Fisher asserts the private nature of this effort at the outset of our features in this issue on "The New Urban Design" (page 79). We have ample reason to celebrate the new strategies of harnessing private initiative in the development of neighborhoods, as well as the return to valid traditions of streets and squares lined with subtly varied buildings.

In our enthusiasm for this revival based on sound urban design precedent, however, we should not overlook the shortcomings of publicly guided private development. For one thing, this process works only where a profitable market can be demonstrated. Unless the scheme appeals to developers, urban design guidelines can have little effect, and the planners may have to shift to a strategy of incentives—typically allowing developers bulk or height bonuses already identified in zoning laws as excessive.

When the economy gets really weak, the developers will simply drop out of the game. And virtually no action is taken to meet urgent needs that offer no profit opportunities—for affordable housing, for instance, or for office and industrial space accessible to the urban poor.

Up to the middle 1970s, we had a promising alternative development strategy in public development authorities. They involved private contractors in their projects, of course, and private investors who bought their bonds. But they did not guide or induce private forces; they decided what to build and where—and they could mandate high quality interior spaces, not just external envelopes. They could also—at least in principle—proceed in the face of a weak economy, thus helping to sustain both the construction industry and design professions in lean times.

In reality such authorities ran into difficulties and lost much of their public support. The largest and most daring of them, the New York State Urban Development Corporation, had to curtail its activities drastically during the mid-1970s recession, when its bonds were called into question—thus proving that even a public authority must look to its profit picture if it is to weather bad times.

The Battery Park City Authority, responsible for the vast landfill development near the tip of Manhattan (pages 86–93), is an instructive adaptation of the development authority concept to current circumstances. While it parcels out plots to private developers, part of the proceeds from the lease of these parcels is financing low-income housing now under construction in the Bronx. Criticized for housing the low-income beneficiaries of this well-intended policy miles away in a far less appealing area—rather than integrating subsidized units on the same site, as the Urban Development Corporation did—Battery Park City spokesmen reply that this transfer of income from very expensive land to housing elsewhere allows them to provide far more low-income units. But it also perpetuates patterns of segregation.

Another strong current force on today's urban development scene—somewhat ironically juxtaposed to the key role played by developers—is the community approval process. In its reliance on incremental development, with familiar, contextual forms, the new urban design reflects the political reality of organized community reaction to development. (For one example of its effect, see News Report item on a Boston office building, page 37.) The most serious drawback of the community approval process is that plans that survive it may be too subservient to community self-interest, leaving real needs of the city or region unfulfilled. Whether in the neighborhoods at the city core or in the distant suburb, we see the same attitude: "It may be needed, but not next door to me."

Given the prevailing public distaste for development and the dependence on private developers, it is no surprise that there is an opportunistic element to current urban design schemes that are otherwise admirable (pages 80–85); many of them are to be built on sites that happen to be vacant—old rail yards, abandoned waterfronts, etc. And they are planned to tap the readiest markets—typically offices, yuppie dwelling units, and shopping bazaars.

We must still find ways to build more of the kinds of facilities our cities really need—affordable housing, in particular—either by somehow making them attractive to private developers or by reviving the use of public development authorities. Otherwise we will just be devising superior containers for a dubious status quo. ■



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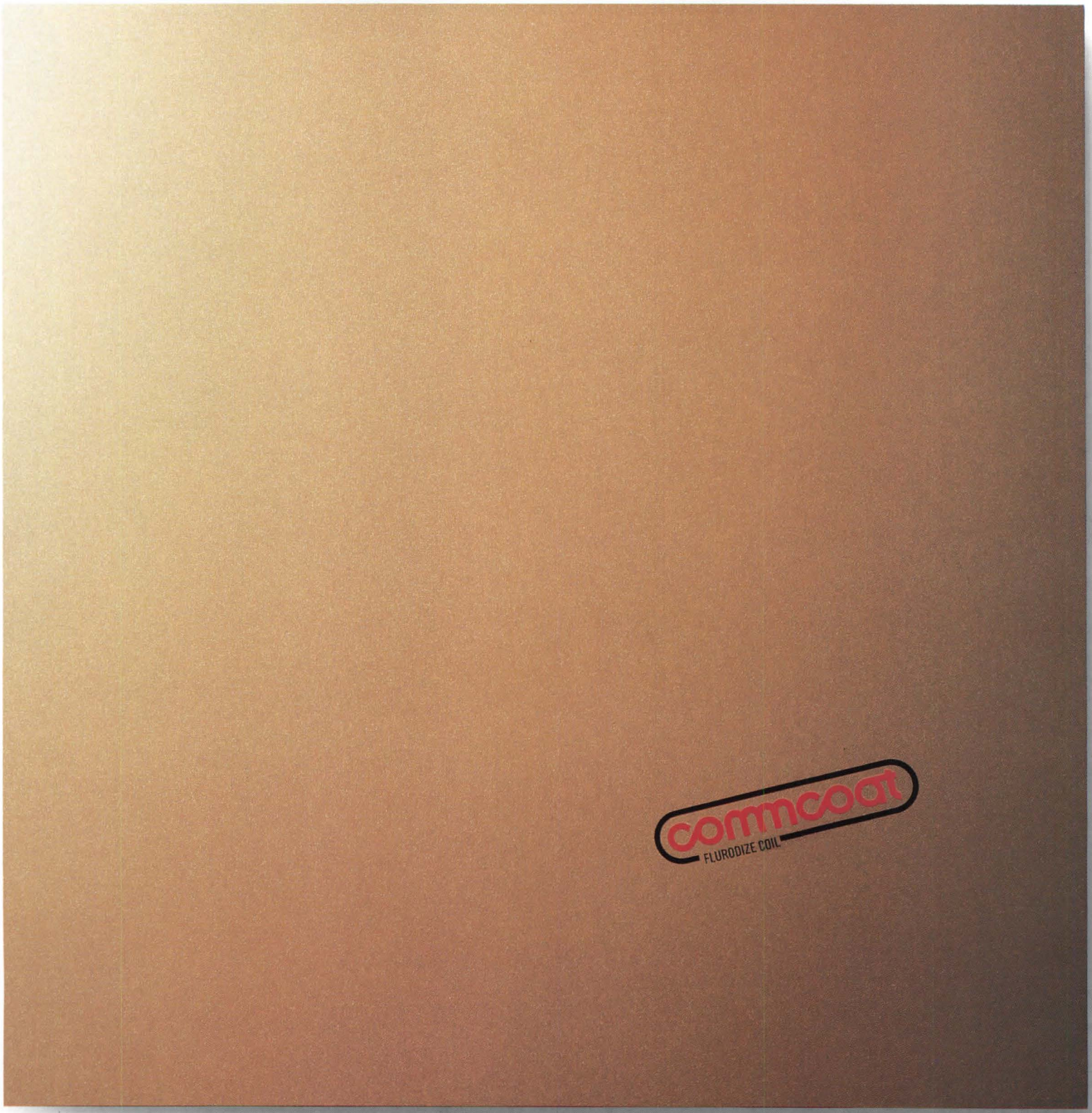




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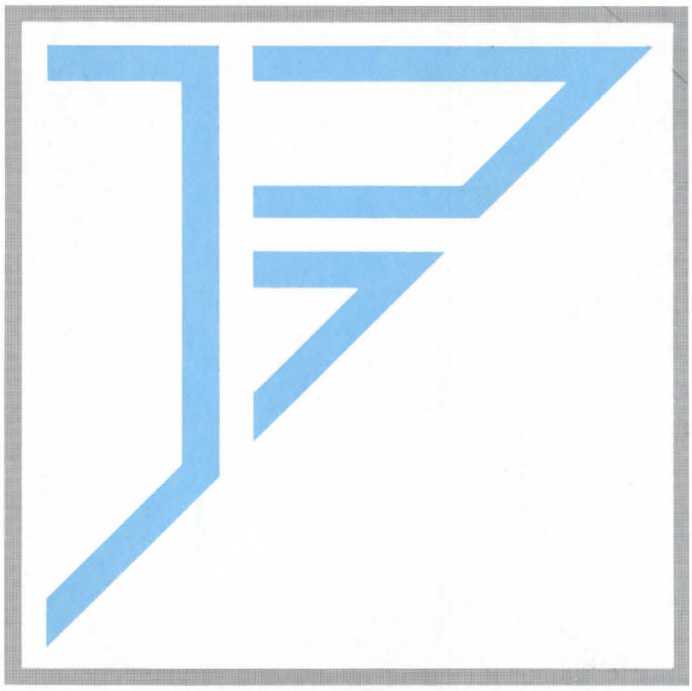
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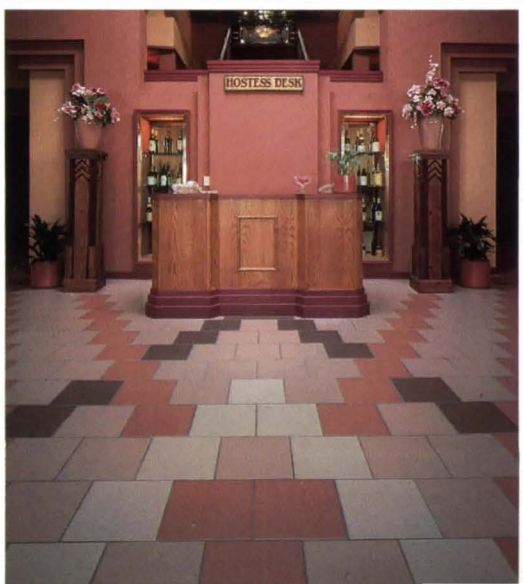
"Architects strive to provide their clients with imaginative, quality design. Not the least consideration is the selection of products which offer variety, economy and durability. Ceramic tile is just such a product. Creative uses of ceramic tile are limited only by an architect's own ability."



John Morris Dixon, FAIA
Editor
Progressive Architecture

"The rich design possibilities of tile—its limitless combinations of colors, textures and patterns—have hardly been tapped by American architects. Today, broadening aesthetic views, coinciding with improved products and application techniques, are encouraging architects and designers to explore the exciting potentials of tile."









Jerry Fisher
Editor/Publisher
Tile & Decorative Surfaces

"As America begins to explore the potential of ceramic tile, look for tile to take its rightful place as an important element in interior and exterior design. Tile's versatility stems as much from its technical characteristics as it does from its range of colors, sizes and trim pieces."



The superior technical and aesthetic qualities of the new porcelain ceramic tiles have substantially expanded design horizons, adding sophistication to settings and surfaces normally thought bland. The vibrant colors, textured surfaces and complex patterns available with Fiandre Ceramic Granite™ will transform the floors and walkways of restaurants, shopping malls and corporate offices into something both rich and unusual.

The tile may inject the drama of polished geometrics set in relief against a matte background, or unify the architectural elements of vast interior spaces.





Sara O. Marberry
Managing Editor
Contract

"Recent advances in ceramic tile technologies translate to greater flexibility for the designer. As a result, the contract industry is using tile to create architectural interest in large public spaces, such as hotels and hospitals, or as a decorative element in offices and lobbies."

The unlimited interplay of shapes and colors possible with Fiandre will complement any interior design.

Low water absorption, through body color, and hardness superior to granite make this the material of choice for any area that must withstand heavy traffic or frequent staining. Corporate lobbies and food service areas will remain attractive for years with a minimum of maintenance.

Tile can be used to create warm, comfortable settings or cooler, more formal spaces. It can create a welcoming "front door" space or provide subtle directional clues that help guide traffic.













Phil Schreiner
Editorial Director
Building Design & Construction

"As the industry comes to better appreciate the value of life cycle economies, the trend is toward making greater use of more permanent materials such as porcelain tile. The real economics of tile lie in its durability and low maintenance requirements, as well as its style."







Fiandre Ceramic Granite™ tiles were originally created to give years of trouble-free service in the harshest industrial environments.

Though the settings have changed from manufacturing facilities and power stations to health spas and automobile dealerships, the environments are just as challenging—and the aesthetic requirements are far more demanding.

Whether reflecting and enhancing the luxurious sheen of expensive automobiles while providing a surface that is virtually impervious to oil and other auto stains, or adding color, texture and crispness of detail to a postmodernist facade, the new generation of Fiandre tile is equal to the job.



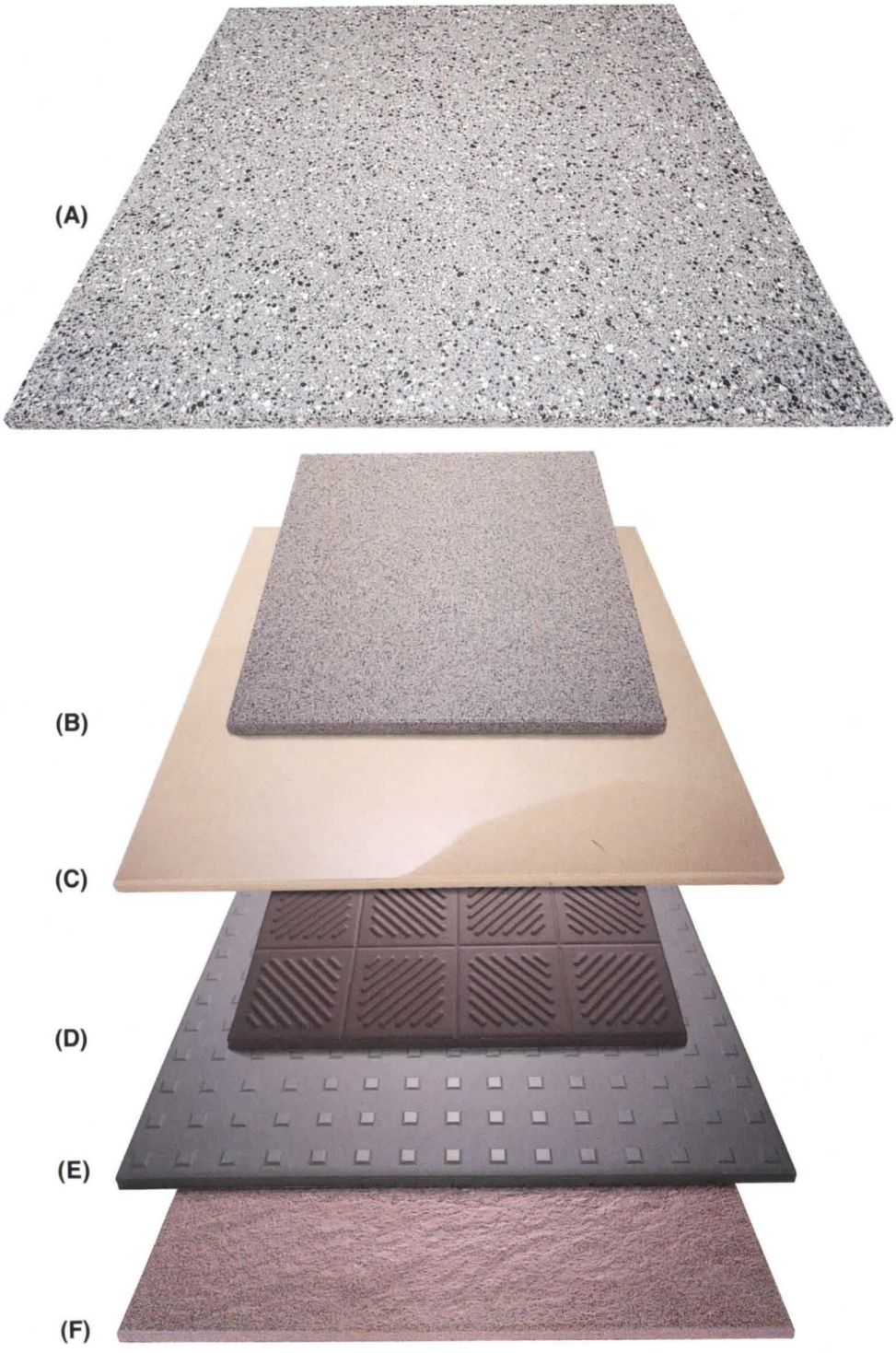




Ted R. Meredith
Publisher
Architectural Record

"As architects become more and more involved in interiors, the specification of all interior products, including ceramic tile, is under increased design scrutiny. The quality and range of ceramic tile is benefiting from being under the spotlight, and as sales figures show, so is the industry."

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Only Fiandre sparks the imagination with these six distinctive styles in a full spectrum of colors and sizes.

(A) CORINDO features a large-granule pattern that duplicates the grain of natural granite. Corindo is available in two sizes with a choice of matte or polished finish. The 12″x12″ size Corindo is offered in nine natural colors, while the new 16″x16″ size is available in three colors.

(B) GRANITE SERIES, the original Fiandre line that revolutionized the tile industry with its natural stone-like look, is available with a matte or polished finish in a combined range of eight sizes, (from 4″x4″ to the new 16″x16″ size) and in a selection of 10 colors.

(C) SOLID COLOR GRANITE SERIES is also available with a matte or polished finish in a combined range of seven colors and seven sizes.

(D) INDUSTRIAL FINISH is a special skid-resistant surface available in three distinctive patterns each equal to the demands of harsh industrial environments.
Skid-Resistant #1, styled with individually textured blocks, is available in 9 colors in the 8″x8″ size.
Skid-Resistant #2, a crisp diagonal line style, (shown) is available in four colors in the 8″x8″ size.
Skid-Resistant Industry, featuring a completely textured surface, is available in three colors in the 6″x6″ size.

(E) DESIGNER LINE offers a unique combination of polished geometrics in relief against a matte background. Available in black or grey with lined, cross and square motifs or in solid colors with a matte or polished finish in the 12″x12″ size.

(F) SLATE FINISH combines the textured appearance of natural slate with the durability and easy maintenance of porcelain tile. The 8″x8″ size is available in seven colors, and the 12″x12″s offer six color choices.

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Fiandre Ceramic Granite™ is a fully vitrified porcelain stoneware of unequaled quality and style.

The superiority of Fiandre's technical and aesthetic characteristics are fully documented in independent testing conducted by the Los Angeles-based Smith-Emery Co., the premier testing lab in the United States.

Compare Fiandre's ratings. These tests confirm that Fiandre Ceramic Granite™ exceeds all industry standards.

POROSITY. A tile's *water absorption rating* is a key indicator of its resistance to staining. Essentially, the lower a tile's score, the higher its resistance.

Although a separate test, *frost resistance* is directly related to moisture absorption. The more moisture a tile will hold, the more freeze-thaw conditions are likely to create cracking, spalling or bond failure.

Thus, Fiandre's absorption rating of 0.04% means it's virtually impervious to stains and uniquely qualified for exterior cladding jobs in even the most severe climates.

The *chemical resistance test,* which measures a tile's ability to withstand staining or etching from acidic or alkaline substances, is a key indicator of Fiandre's ability to hold up in harsh environments such as industrial facilities or commercial kitchens.

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TEST NAME	INDUSTRY STANDARD	FIANDRE RATING*
Water Absorption ASTM C-373	0.5%	0.04%
Frost Resistant ASTM C-1026	No Cracking	No Cracking
Mohs' Hardness	1-10 (10 = diamond)	9 9 = stronger than natural granite
Abrasive Hardness ASTM C-501	100 or greater	142
Breaking Strength ASTM C-648	250 lbs. minimum	640 lbs.
Thickness Range ASTM C-499	not to exceed 0.04	0.01
Facial Dimensions ASTM C-499	1.5% max. range	0.40%
Warpage (Diagonal) ASTM C-485	0.75% maximum	0.18%
Wedging ASTM C-502	1.0% maximum	0.59%
Bonding Strength ASTM C-482	50 PSI minimum	446 PSI
Chemical Resistance ASTM C-650	Acid 10% HCL	Unaffected
	Alkali 10% KOH	Unaffected
Robinson Floor Test ASTM C-627	Performance level rating	Extra heavy
	Cycles passed	14
Coefficient of Friction ASTM C-1028 (modified)	0.60 minimum	Meets/Exceeds **

*Results Smith-Emery Tests January, 1982

**Although Fiandre meets/exceeds industry standards, manufacturer recommends individual testing for each specific installation.

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LIGHTS ON ICONS at WESTWEEK

Heralded as a "new eclectism" in design at the Paris International Furniture Exhibition in January of 1987, ICONS will make its U.S. premier at WESTWEEK on March 23, 1988. As a contemporary expression of classical themes in furniture design, the collection has drawn enthusiastic acclaim from European critics and professional opinion both in Paris and London, where it had its showing in October 1987.

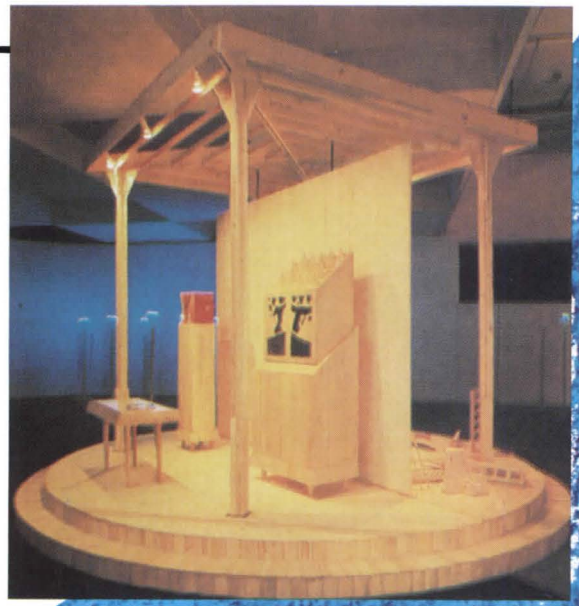
"What we are about to see in this exhibition is intended to be more than a show of objects" writes Alberto Maria Prina in his introduction to the ICONS catalogue. The collection "is intended as an experimental area, where architects, artists and designers can meet with manufacturers of the 'classic' furniture piece, which has been shunted aside by official culture for several decades...". ICONS signals, adds Prina, the emergence of "forms, materials and motifs which have been the collective heritage of the domestic landscape for centuries."

The exhibition will also highlight the continuity of Italian Design into modern era with the presentation of contemporary design pieces.

ICONS will be exhibited at the galleria, on the fifth floor of the Pacific Design Center, from March 23 to April 6, 1988. The Exhibition will then move to Atlanta where it will have its east coast premier in conjunction with "Design ADAC" at the Atlanta Merchandise Mart from May 11-13.

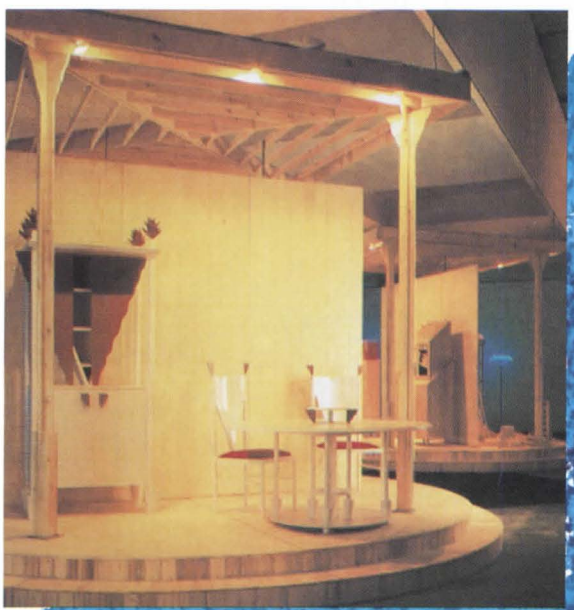


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"Eclecticism is therefore a form of liberation from the unitary canon, from the rules. It provides the privilege of inspiration, myth, magic and free creativity."

Alberto Maria Prina



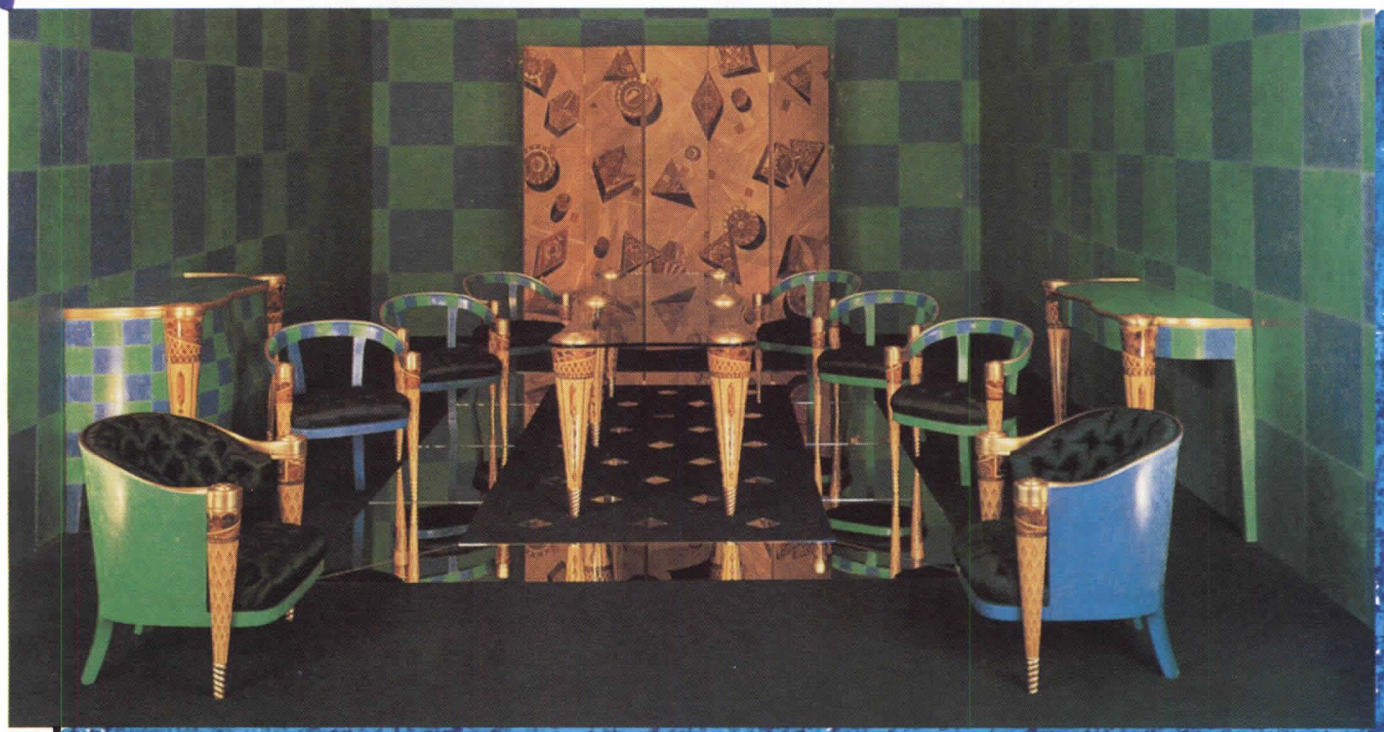
Ugo La Pietra



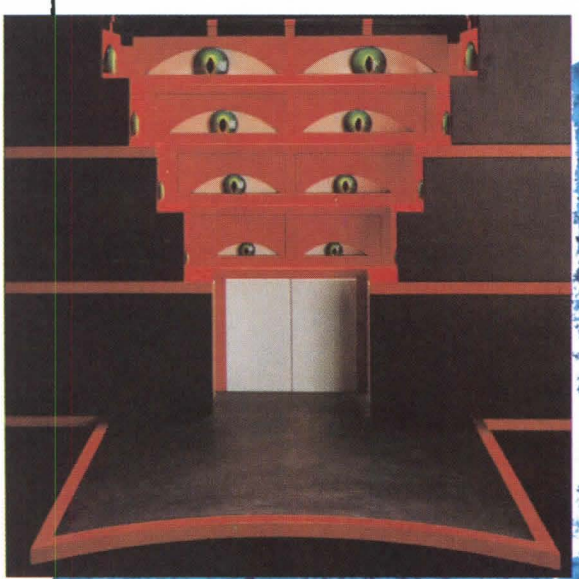
Peppe Di Giuli

Davide Pizzigoni

Ugo La Pietra



Carlo Rampazzi



Claudio D'Amato

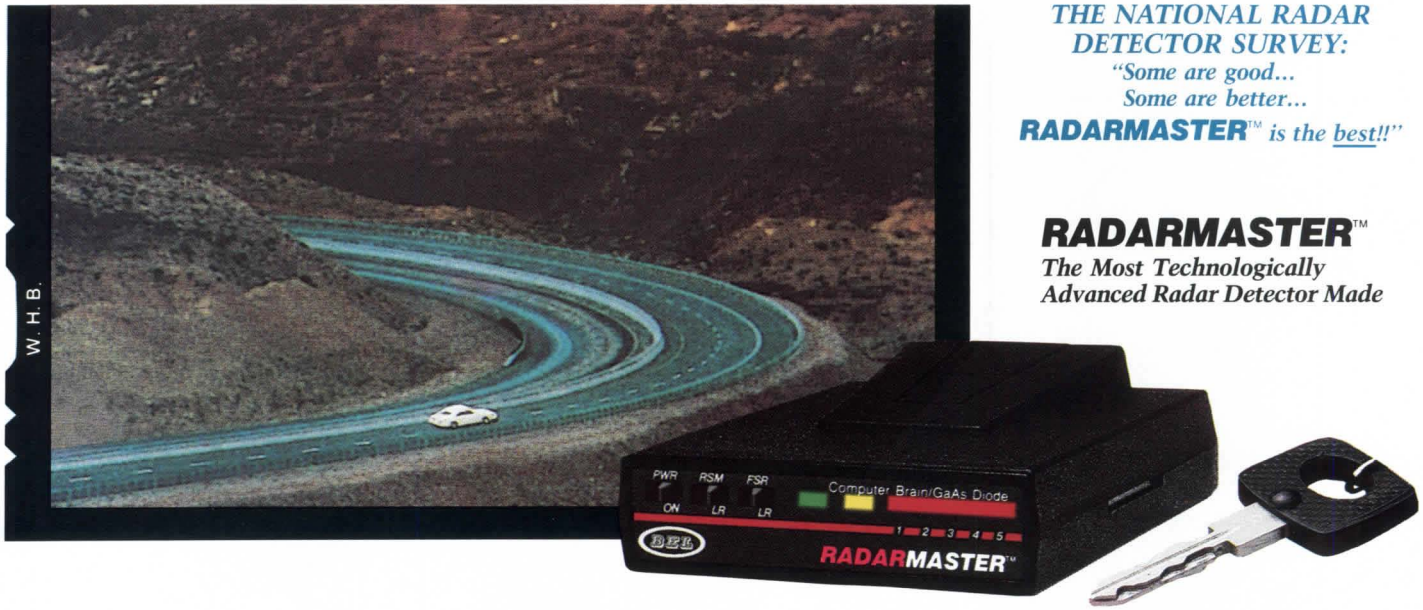
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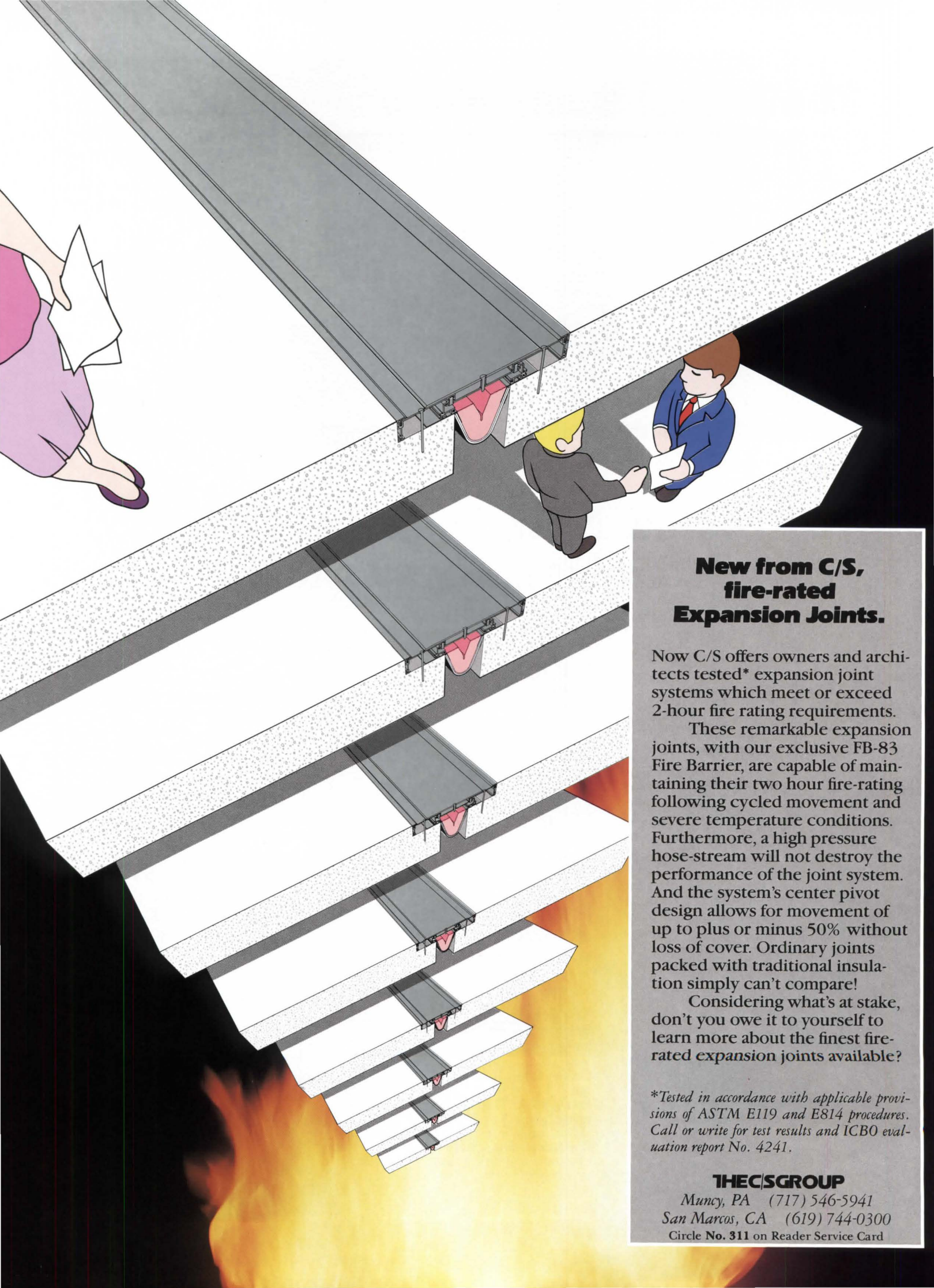
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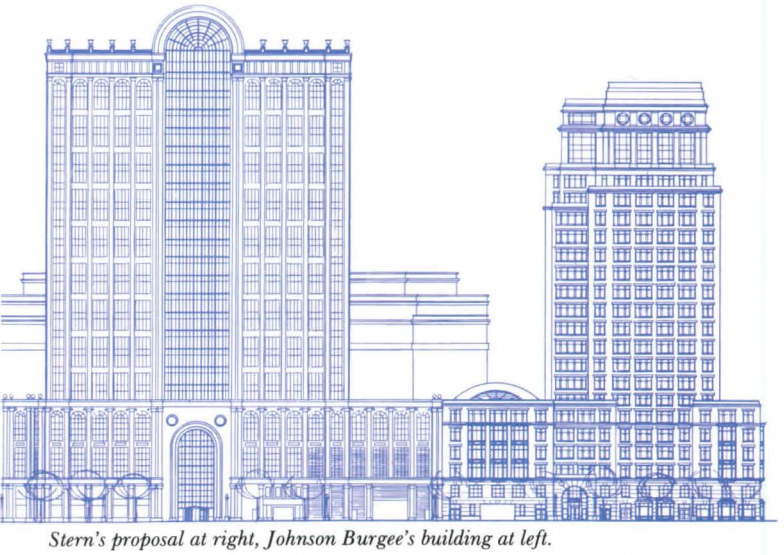
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P/A News Report

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Stern's proposal at right, Johnson Burgee's building at left.

Public Presence in Boston

The effect of public pressure on private development is exemplified in the office project being built by Gerald D. Hines Interests and The New England on Boylston Street in Boston, directly behind H.H. Richardson's Trinity Church. As originally designed by John Burgee Architect with Philip Johnson (See P/A, Feb. 1984, p. 66), the project consisted of a 90-foot-high base, two entry courts, and two matching office towers. While the bulk of the building was allowed under a special zoning district created for the site in 1983, several neighborhood groups objected to its size, its appearance, and the traffic and shadows that it would generate.

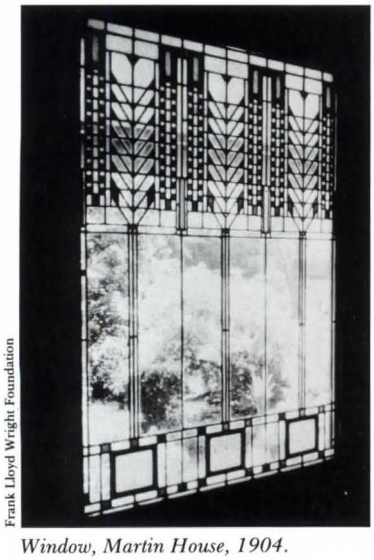
While some minor changes were made to the first-phase tower, the

(continued on page 38)

FLLW Exhibit Opens in Dallas

An exhibition of Frank Lloyd Wright drawings, models, prints, windows, furniture, and even a full-scale Usonian Automatic House opened in Dallas on January 19. Co-hosted there by the Dallas Museum of Art and the Trammell Crow Center (formerly the LTV Center), the exhi-

(continued on page 38)



Frank Lloyd Wright Foundation

Window, Martin House, 1904.

Omaha to Raze Historic District

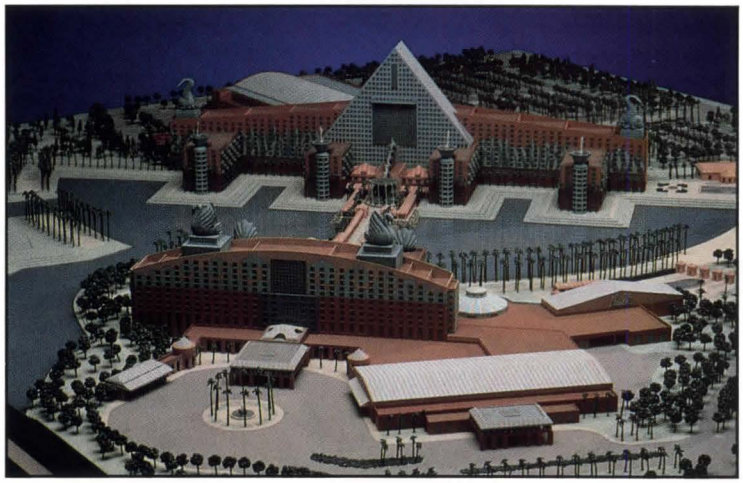
Omaha's Jobber's Canyon Historic District, a six-block collection of early 20th-Century warehouses, will be torn down, just one year after the city arranged for the area to be listed on the National Register. Despite vocal protests both locally and nationwide from preservationists, the City Council voted on February 2 to approve a redevelopment plan that would allow the Con-

(continued on page 40)

Addition Proposed For NYC Landmark

Is the preservation of sunlight and views in cities properly within the purview of landmarks commissions? The question, not a new one, has been raised again because of opposition to the rehabilitation and expansion of a venerable New York department store, B. Altman & Company. The store has occupied the block between Fifth and Madison Avenues, 34th to 35th Streets, since

(continued on page 40)



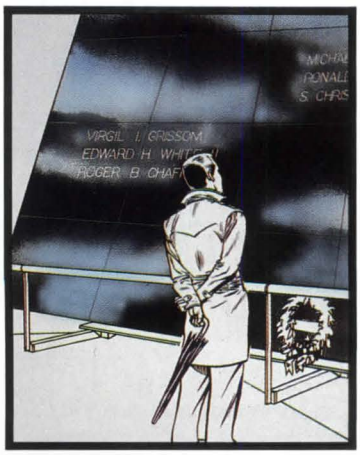
Graves's Dolphin Hotel.

Entertainment Architecture

Architect Michael Graves of Princeton, N.J., has designed a resort/convention complex for Walt Disney World Epcot Center in Lake Buena Vista, Fla. The $375-million complex, on which construction began in late January, includes two luxury resort hotels, with a total of 2300 guest rooms and 200,000 square feet of meeting and convention space, on a 150-acre site.

The 26-story Walt Disney World Dolphin Hotel and Convention Center, so named for the two 55-foot dolphins that crown it, will contain 1510 guest rooms, seven restaurants (around a shell-shaped pool), and an adjacent, 51,000-square-foot exhibit hall. What will be the largest structure on Walt Disney

(continued on page 39)



Winning Astronauts' Memorial Design by Holt Hinshaw Pfau & Jones. See Perspectives, page 45.

Pencil Points

Three teams **selected to compete for Toronto's new ballet and opera house are: Barton Myers Associates of Toronto and Los Angeles with Kuwabara Payne McKenna Blumberg of Toronto; Moshe Safdie & Associates of Montreal and Boston; and James Stirling, Michael Wilford & Associates of London with a group of Toronto architects called Lyric Theater Venture. Chosen by interview from a field of 16, these teams will produce designs to be judged in March.**

Columbia University's new dean **of the Graduate School of Architecture, Planning, and Preservation will be Bernard Tschumi, Swiss-born architect and theorist whose major built work is the P/A-Award-winning Parc de la Villette (P/A, July 1987) in Paris.**

Unity Temple in Oak Park, Ill., **has become the first religious building in the U.S. protected under a preservation easement. The Unitarian Universalist Church of Oak Park, occupants of the 1906 Frank Lloyd Wright landmark, have donated this easement to the Landmarks Preservation Council of Illinois, a not-for-profit organization that will assure protection of the structure's exterior and interior.**

AIA Convention keynoter **this year will be science fiction author and biochemist Isaac Asimov. Also addressing the May 15–18 meeting in New York will be pollster Louis Harris, whose organization will soon begin a survey of experts intended to project conditions in the year 2000.**

Arthur Erickson **will discuss the role of lighting in architecture in his keynote address at the sixth Lighting World International, which will take place April 13–15 at the Los Angeles Convention Center in Los Angeles.**

Robert A.M. Stern Architects, **New York, has been selected to design the new gallery building for the Norman Rockwell Museum in Stockbridge, Mass. Designed with his associate William Georgis, his scheme was one of three submitted to a limited competition. Other participants were Hardy Holzman Pfeiffer Associates, New York, and Thomas Gordon Smith of Chicago.**

Boston *(continued from page 37)*
community was not appeased. So, for the second phase of the project, the developers dropped Burgee and Johnson as the architects, drew up a new program based upon the suggestions of the neighborhood groups, and held a limited competition to select a new design and a new firm that would be more acceptable to the community. Robert A.M. Stern got the commission. Orienting the second tower 90 degrees to the first, cladding it in brick with punched windows, and articulating it with setbacks and beltcourses, Stern went out of his way to minimize the effect of the building on Boylston Street and on the Back Bay neighborhood. He also went out of his way to build a consensus in the community, meeting regularly with a Design Advisory Panel set up by the Boston Redevelopment Authority and "at least 50 other groups," says Stern.

Such public involvement in the design of private projects can work, although imperfectly. Design review often has little effect on the location and mass of buildings. Such battles have to be won through zoning laws.

Design review also has a questionable effect on architecture. Stern's design has many elegant parts, but they do not always relate well to each other. The building is contextual almost to a fault. Whether community input produces that or simply encourages it—"Stern's building was a bit of a camel to begin with," says critic Jane Holtz Kay—doesn't matter; the result is the same.

Finally, the process can limit competition among developers. Whatever else this project does or doesn't do for Boston, it underscores the need for more effective ways of controlling development, without leading to confrontation, endless meetings, and well-intended camels. ***Thomas Fisher*** ■



Stern's 222 Berkeley Street.



John Minnicks

Beinfield, Wagner & Associates' house.

Best Small House

Architects Bruce Beinfield and Jonathan Wagner of Beinfield, Wagner & Associates of Norwalk, Conn., are the winners of the fifth annual Best Small House competition, cosponsored by *House Beautiful* and the American Wood Council.

Construction of the winning design is now nearing completion in Westport, Conn. The competition's emphasis on wood construction prompted the architects to design a "grand American cottage," by far the most romantic design in the competition's brief history.

The shingled house is an exercise in illusion; its three-story massing makes it appear to tower over its site's prim landscaping. A double-height bay window, short, stout columns, tiny dormers and windows, and a fat band of white trim further the visual trick of scale, as does the garage that mimics the steep pitch of the house. For maximum space, the architects planned interiors around a central stair and utility core; circulation spaces overlook the double-height living room and foyer.

The Best Small House competition offers young architects the reward of construction, interior decoration, and publication of winning designs. Plans for the house are made available to *House Beautiful's* readers for a small fee, and a percentage of the profits are shared with the architects. ***Susan R. Winget*** ■

The author is a freelance writer based in Connecticut.

Wright *(continued from page 37)*
bition will remain through April 17, after which it will travel.

Entitled "Frank Lloyd Wright: In the Realm of Ideas," the show comprises approximately 160 works; it was organized and is being circulated by the Scottsdale Arts Center Association and the Frank Lloyd Wright Foundation, and was organized by curators Gerald Nordland, art historian and formerly director of the Milwaukee Art Museum, and Bruce Brooks Pfeiffer, archive director for the Wright Foundation. Sponsors for the exhibition and tour are the Kohler Company and the Whirlpool Corporation, with the City of Scottsdale providing funding for the construction of the Usonian House.

Organized into four subject sections, the exhibition explores what Wright meant by "organic" architecture, in terms of "The Destruction of the Box," "The Nature of the Site," "Materials and Methods," and "Building for Democracy." Much of the work is shown through eight models and the enlarged photographic prints of drawings. Aside from the 12 original drawings included, the pieces of furniture and the decorative windows are perhaps the most appealing parts of the exhibition.

On the plaza of the Dallas Art Museum is the Usonian Automatic House, designed by Wright in the 1950s. Originally envisioned in concrete block with horizontal and vertical reinforcing rods and concrete grout binding the whole into a uniform structure, the house was reinterpreted for this show in materials that would permit disassembly



Barth Tillotson

Wright's Usonian House.

and reconstruction for exhibition purposes. The construction of the exhibit house, directed by the Taliesin Associated Architects, incorporates walls built up of polystyrene and laminated wafer board, assembled into 4-foot panels and coated with a cementitious material inside and out to simulate concrete block. Flooring material, appliances, lighting and heating and ventilating systems are updated to today's standards. The house will be constructed permanently in a Scottsdale museum.

Following its Dallas run, the exhibition will have the following schedule: Smithsonian Institution, National Museum of American History, Washington, D.C., June–September 1988; Center for the Fine Arts, Miami, December–March 1989; Museum of Science and Industry, Chicago, June–September 1989; Scottsdale Center for the Arts, Scottsdale, Arizona, January–March 1990; and San Diego Museum of Art, San Diego, April–July 1990. ***Jim Murphy*** ■

P/A Awards at the Plaza

Some 30 professionals in architecture and related fields gathered at the Plaza Hotel in New York on Friday, January 22, to attend the presentation ceremony for the 35th annual *Progressive Architecture* awards program. The 25 winners, selected from 925 entries submitted to the P/A Awards program, received certificates in recognition of their achievement. All winning projects in architectural design, urban design and planning, and research were published in the January issue of P/A.



Paul Friend

John Dixon (left) honors Ralph Lerner.

Winners of the 13th annual P/A AdAwards were honored separately, also on January 22. For a complete list of winners, see January P/A, page 32. ■

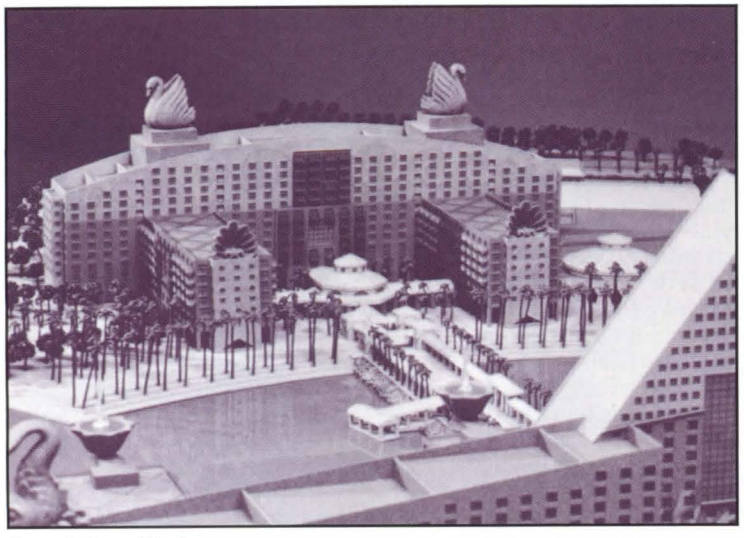
Disney *(continued from page 37)*
World's 28,000 acres has a central pyramid with a cascading waterfall and four nine-story guest wings, each topped by a verandah and a lighted fountain.

Across a crescent-shaped lagoon that is spanned by a landscaped walkway, the 12-story Walt Disney World Swan Resort will be topped by a pair of 47-foot-tall swans. The 760-room hotel, which has four restaurants of its own, will open in 1989. Both hotels will be painted blue-green and coral, with a pattern of banana leaves on the Dolphin and one of waves on the Swan. Graves chose the dolphin and swan, Classical symbols of water, for their whimsical as well as their iconic power. He felt that they could be as effective as the classic Disney characters (which, while universally beloved, were deemed inappropriate as images for convention hotels).

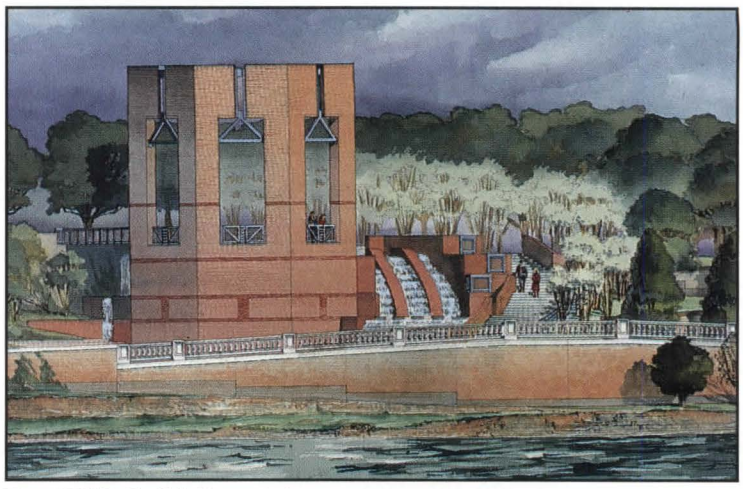
The project involves a complex cast of characters. The development/financing team—Metropolitan Life Insurance Co., Tishman Realty & Construction Co., and Aoki Corp.—is leasing the land from the Walt Disney Company and developing it under Disney's direction. Master planning was done by the Disney Development Co., whose president, Peter Rummell (inventor of the phrase "entertainment architecture"), and vice president in charge of master planning and architecture, Wing Chao, worked closely with architect Graves on the conceptual design. New York architect Alan Lapidus handled design development and working drawings for the project.

The hotel complex is the first to be unveiled in what promises to be a large number of designs commissioned from noted contemporary architects by Disney, under the leadership of CEO and chairman Michael D. Eisner. Although the company won't divulge the names of other architects with projects in the works, they have made no secret of their commitment to quality architecture. With the amount of land still to be developed in Florida and Burbank, Calif. (home of their corporate headquarters and motion-picture production facilities), Disney's potential as a major corporate client is, to say the least, promising.

Pilar Viladas ■



Graves's Swan Hotel.



Team HOU's Buffalo Bayou design.

Best Designs: *Time*'s Choices

Time magazine's January roundup of best designs from the past year includes Cesar Pelli & Associates' World Financial Center in New York (July 1985 P/A, p. 79), Murphy/Jahn's new terminal at O'Hare Airport, Chicago (Nov. 1987 P/A, p. 95), Frank O. Gehry & Associates' house in Wayzata, Minn. (Dec. 1987 P/A, p. 60), Kallmann McKinnell & Wood's Back Bay subway station in Boston (Sept. 1987 P/A, p. 53), and Hardy Holzman Pfeiffer Associates' remodeled Majestic Theater in Brooklyn, N.Y. (see April 1988 P/A). Also among critic Curt Andersen's choices were Feinberg Hall, a Princeton University dorm by Tod Williams; and the Lloyd Center Cinemas in Portland, Oreg., by BOOR/A. Design objects rounding out this top ten were: the Strala lamp by Scot Laughton and Tom Deacon, a P/A Furniture Competition winner (P/A, May 1987, p. 117); a desk by Christopher Alexander; and bedding by graphic designer Michael Vanderbyl. ■

Vernon Mays Joins P/A Staff

Vernon Mays has been appointed Associate Editor of *Progressive Architecture*, with responsibilities in the areas of Technics and Architectural Design. Holder of a B.A. in journalism from the University of North Carolina, Mays worked for six years on newspapers, including three years as a feature writer for the *Fort Lauderdale News*, before earning his Masters in Architecture at Virginia Polytechnic Institute. While at VPI, he was an instructor in writing skills for thesis students and edited university publications. Most recently, he was architecture critic for the *Hartford Courant*. ■

Slow Movement on Houston's Bayou

Houston relied so much on water-borne transportation in the 1860s that it was known as the "Bayou City." That riverside heritage gathered renewed attention in a 1986 national design competition for a park commemorating Houston's and Texas's Sesquicentennial (P/A, July 1986, p. 25). But after the winning design for Buffalo Bayou Sesquicentennial Park was announced, the question remained: Will it get built?

Despite the downturn in Houston's economy, the answer proved to be "Yes." A formal groundbreaking in October signaled the start of construction on the winning design by Team HOU (Guy Hagstette, John Lemr, and Robert Liner).

Now under way is the smallest piece of the 9.6-acre park, an entry sequence that links the street level and bayou edge. The new construction, which abuts the recently completed Gus S. Wortham Theater Center (P/A, Jan. 1988, p. 29) and its public plaza, includes two buildings—a pavilion and gatehouse. A series of steps and a cascade of small waterfalls radiate from the octagonal pavilion, which will house artwork with a historical theme. The gatehouse marks a series of ramps to the bayou edge, which features an active waterfall. Night lighting should encourage the bayou walkway's liveliness on opera and ballet nights at the Wortham.

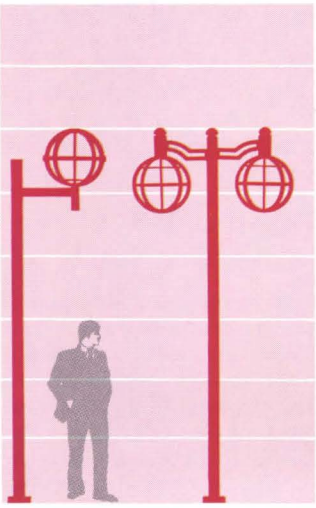
This stage of development represents about ten percent of the Buffalo Bayou scheme. While some have expressed misgivings that the project could stall, producing two follies on a knoll, the fact that its extensions already are under design development and review indicates, for the moment, that isn't happening. ***Peter Papademetriou*** ■

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Altman's *(continued from page 37)*
the first decade of this century. The building—designed by Trowbridge and Livingston—was designated a landmark by the New York City Landmarks Commission in 1985.

If a current design by Hardy Holzman Pfeiffer Associates proceeds, the existing store will be renovated, nine current retail floors will be reorganized into five floors, and a two-part addition will cap the Madison Avenue and mid-block segments. On Madison, the proposal calls for six additional office floors, four bays deep. Materials and details are intended to match the original design. To the west of the new office block, a three-story iron-and-glass pavilion, roof garden, and running track for employees will replace unsightly mechanical equipment and weeds.

Ornate glass and cast-iron entry canopies on Fifth Avenue will be restored, and the existing building will be cleaned. A new canopy, entrance, and lobby for the office block will be added near one end of the Madison Avenue façade, and will be balanced visually by creating similar fenestration effects and a canopy at the other end. The combined restoration and additions should have the effect of creating a finished design statement in place of the tenuous one that exists today.


Stephen Barker, 1987

B. Altman's addition, New York.

The additions are understandably unpopular with the Murray Hill area neighbors, primarily to the north and east. In hearings before the Landmarks Preservation Commission, objections were raised in behalf of the Episcopal church diagonally across the corner of 35th and Madison, noting that the addition would rob much of the remaining sunlight from a facility that already gets little of it. A number of apartment buildings northeast of Altman's also count on sunlight that would be severely limited by the six new floors. As this is written, the Landmarks Preservation Commission has not handed down its decision about the appropriateness of the HHPA proposal. ***Jim Murphy*** ■


Lynn Meyer

Jobber's Canyon Historic District.

Omaha *(continued from page 37)*
Agra Corporation to raze the warehouses to make room for a campus of low-rise headquarters structures.

The city council's willingness to accommodate ConAgra is seen as a response to recent economic setbacks in Omaha. ConAgra says their expanding company could bring 1000 jobs to the city in the next decade.

In December of 1986, the Omaha City Planning Department succeeded in having the area designated as a historic district, with the hope that the buildings could be rehabilitated as a mixed-use area. One building in the district, which is among those to be destroyed, has already been converted into apartments and retail stores.

ConAgra entered the picture when, according to a company spokesperson, they were approached by the city with the idea of incorporating the Jobber's Canyon site and a large adjacent riverfront tract in their plans for a new headquarters. The company agreed, with the condition that the "big, ugly red brick buildings" would come down. The city cooperated with ConAgra by declaring the warehouses a blighted area, paving the way for condemnation if necessary.

The proposed development calls for a park to be built linking downtown Omaha with its waterfront; developing the area along the river has been "a dream of the city for 15 years," according to Planning Director Martin Schukert. The plan has drawn fire for the low-rise, suburban style buildings with which ConAgra proposes for the site.

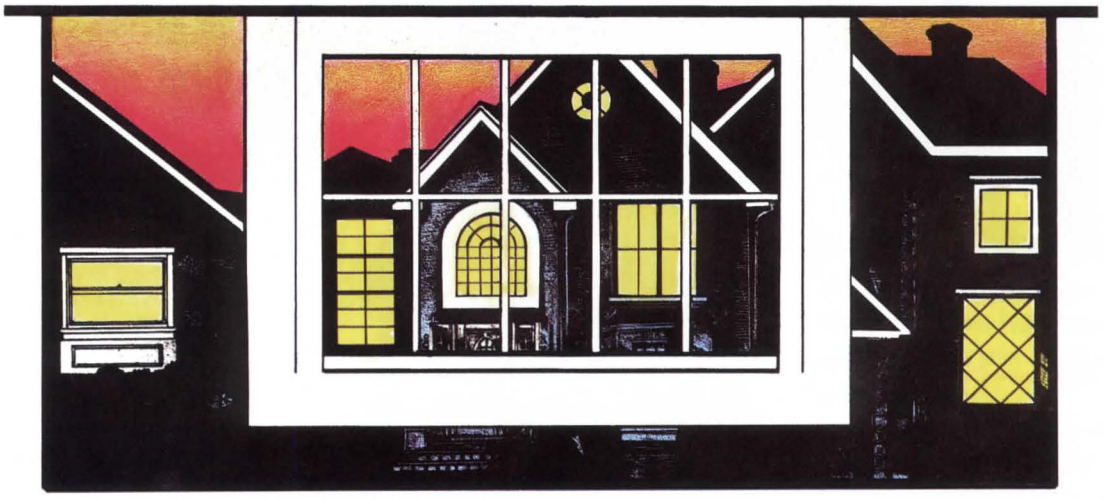
Organized opposition to the plan has been led by Omaha's Landmarks Inc. The organization's president, Leonard Sommer, said that the group had voted to take no legal action to stop the destruction following the council vote, but that they hope to "set up a dialogue to look at alternative ideas" and to "educate the community." ***Mark Alden Branch*** ■

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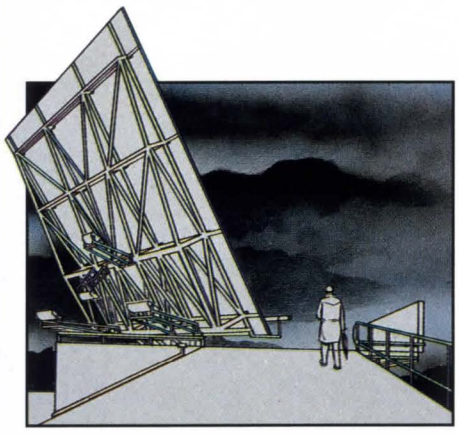


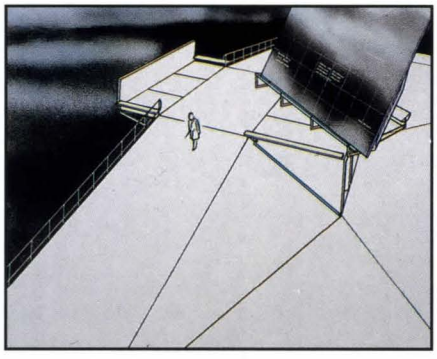
Perspectives

The top three prizes in the Astronauts' Memorial competition went to projects that played upon images of flight and space technology.

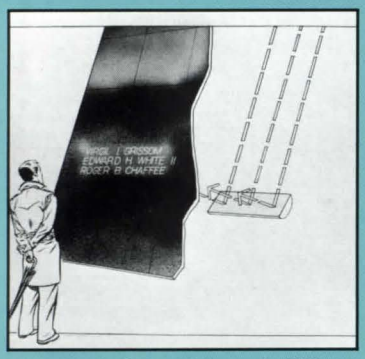


Holt Hinshaw Pfau & Jones's winning scheme features sun-tracking reflector; their story board presentation (selected panels below) chronicles fictional visit.









Movements of memorial panel will keep sun behind it; mirrors on back will direct light through inscriptions.

"Space Mirror" Honors Astronauts

A technologically inspired device with a memorial message will be the focal point of the Astronauts' Memorial to be built at the Kennedy Space Center in Florida. The design by Holt Hinshaw Pfau & Jones of San Francisco, winner of an open nationwide competition that drew 756 entries, was dubbed "space mirror" by the jury.

The major competition requirements were that the memorial identify all 14 astronauts who have perished to date in the space program, in a manner that expressed their aspirations as well as their sacrifices, and that it allow for commemoration of astronauts who may die in future space efforts. One challenge was to establish an image of proper dignity on the chosen site—highly visible but adjoining the busy Spaceport USA visitors' center. The memorial will have to be an effective symbol when seen by the anticipated 2.5 million annual visitors to the space center—whether or not they view it up close—and by the roughly 5000 employees who will pass by it every day.

The winning scheme was one of the few entries that adopted the forms of the launching and tracking devices that dot the space center area—a risky approach for a memorial that must be clearly distinguishable from surrounding hardware. The jury agreed that the winning architects used technological imagery in a truly distinctive way and approved the way it actually harnessed technology to serve its memorial purpose. The vast reflective plane—a 40′ x 50′ sheet of polished black granite—will be tilted and rotated by a computer-controlled tracking system, so that it always faces away from the sun, reflecting Florida's typically variegated sky. The sun's rays will be reflected from mirrors mounted on the steel supporting framework to illuminate inscriptions cut through the granite.

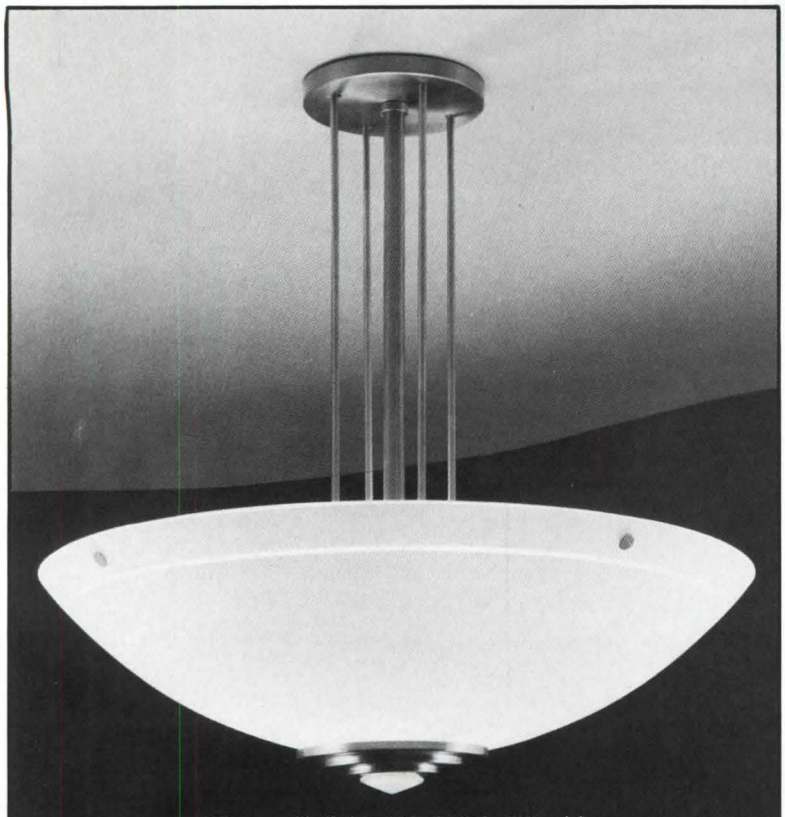
Unlike many submitted schemes, which established meditative environments by surrounding visitors with walls or berms, this one remains exposed, but focuses the visitor's attention on sky reflections and the clusters of names emblazoned on it.

This winning entry also differed from other competition submissions in its presentation style—a secondary concern of course, but one that was handled in a fresh and effective manner. All of the requirements of the mandatory 30″ x 40″ presentation were met in a story-board format, with 17 exquisitely rendered sketches (a few of which are reproduced here) arranged in comic-strip fashion. A running hand-printed text explained the design through the words of an astronaut (in a trench coat) visiting the memorial and recalling a lost comrade.

Range of Winners

The second and third prize designs indicate some of the range of solutions the jury found appropriate. The second place entry poises a bent plane of metal plates above a primeval swamplike landscape; the aspirational character of the rising plane was thought of as eloquent, but there were questions about walking on the metal plates on hot days, treading on inscribed names in the process. The third place winner also in-

(continued on page 46)





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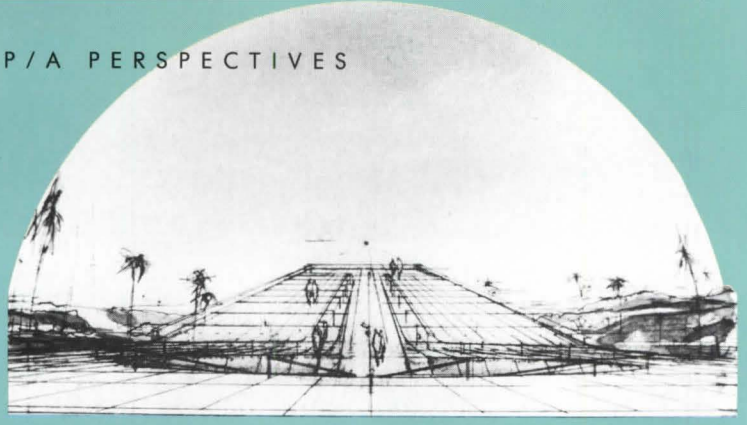
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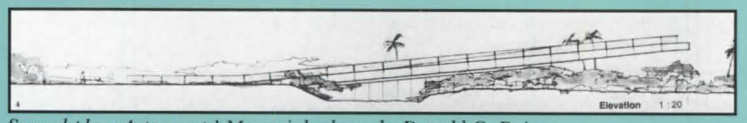
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Second place Astronauts' Memorial scheme by Donald C. Paine.

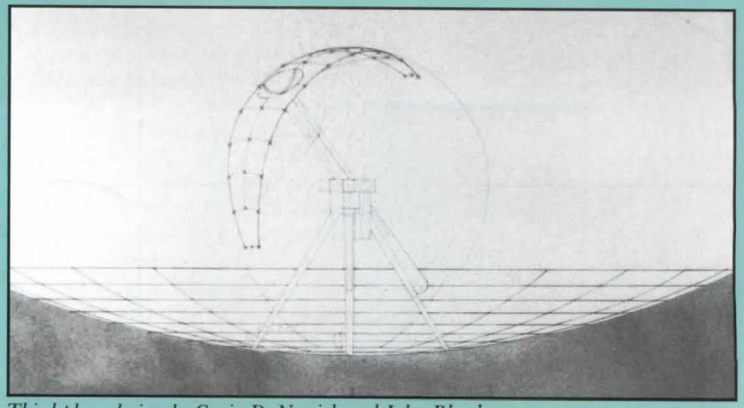
Memorial *(continued from page 45)*
volved a sun-tracking device, which would produce a shadow moving across a dishlike surface with inscriptions; on the anniversaries of astronaut losses, sunlight passing through crossed slits would illuminate the astronauts' names.

As first place winners, Holt Hinshaw Pfau & Jones won $25,000, as well as the commission (assuming successful negotiation of a contract with the sponsors); second prize of $15,000 went to Donald C. Paine of Somerville, Mass., and third prize of $5000 to Craig D. Newick and John Blood of New Haven, Conn. Five merit awards of $1000 each were given to: Darell Fields, Cambridge, Mass.; the Michele Bertomen Architect team of Pablo Diaz, Bruce Gemmell, Ludmilla Pavlova, and Gwendolyn Butler, New York; Khanh Ba Nguyen, Santa Ana, Calif.; Keith and Kathryn Rabuse, Dallas; and Karl Ermanis and Brad Vokes, Minneapolis.

Although any U.S. citizen could enter, the list of winners was dominated by young architects. The partners of Holt Hinshaw Pfau & Jones are only in their thirties (partner Wesley Jones turning 30 the day they accepted the prize); they have already won P/A Awards recognition twice (P/A, Jan. 1987, p. 101, and Jan. 1988, p. 110).

Competition advisors were architects Jeffrey Ollswang and Lawrence Witzling of Milwaukee. The jury comprised: Hideo Sasaki, landscape architect and principal of Sasaki Associates, San Francisco; Michael Pittas, Los Angeles, urban designer and former head of the design arts program of the National Endowment for the Arts; Ralph Johnson, a principal of Perkins & Will, Architects, Chicago; Alan C. Helman, Orlando, architect and chairman of the Astronauts' Memorial Foundation; and John Morris Dixon, Editor of P/A. Nonvoting jurors were Charles Hollinshead, Director of Public Affairs for NASA's Kennedy Space Center and Dr. Robert W. Brown, Director of NASA's Educational Affairs Division in Washington.

The memorial will be the first realized project of the Astronauts' Memorial Foundation, a nonprofit organization founded in 1986 in the aftermath of the Challenger disaster. The foundation is collecting money from various donors and from special, optional Florida automobile license plates with depictions of the Challenger liftoff. It plans to spend $3–4 million—only a fraction of what it expects to collect—on this memorial, which is to be completed in 1990. The remainder will be devoted to educational efforts. ***John Morris Dixon*** ■



Third place design by Craig D. Newick and John Blood.

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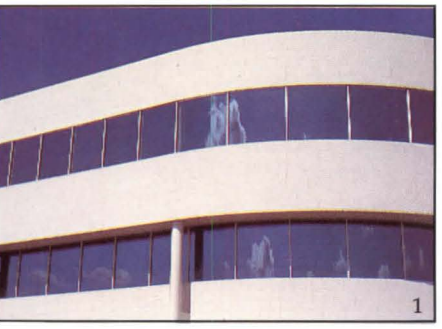


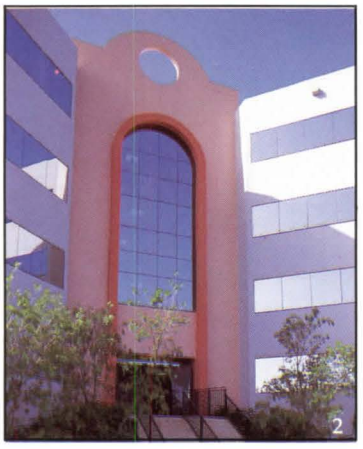
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Product Description

ECLIPSE® reflective glass is a pyrolytically coated reflective glass product of the Libbey-Owens-Ford Co. It is manufactured using a chemical vapor deposition process in which a gas reacts with the semi-molten surface of a ribbon of float glass to form the reflective coating.







Features/Benefits

Fabrication/Installation Ease Unlike many competitive products, ECLIPSE reflective glass is post temperable. The durability of the pyrolytic coating is such that ECLIPSE reflective glass can be handled, cut, insulated and tempered or heat-strengthened like ordinary annealed glass. It can be glazed with either surface to the exterior in both monolithic and insulated glass applications and is compatible with most commercially available glazing sealants. This added product flexibility can greatly reduce the need for costly special handling, fabrication and installation procedures.

Superior Performance ECLIPSE reflective glass offers an exclusive combination of crisp reflectance and good daylight transmission which results in a uniquely low absorption characteristic which eliminates the need for heat treating in most vision applications. In addition, the coating is extremely uniform and effectively blocks the sun's damaging ultraviolet rays.

Distinctive Appearance Whether the coated surface is glazed to the interior or exterior, ECLIPSE reflective glass has a unique, striking appearance which provides building designers with an exciting new visual tool.

Excellent Availability The on-line pyrolytic coating process gives ECLIPSE reflective glass ready availability which can significantly reduce lead times, helping control project costs.

Product Characteristics

Heat Treatable ECLIPSE reflective glass can be heat-strengthened, tempered or bent. As with any pyrolytic reflective glass, maximum temperature limits must be observed.



Interior or Exterior Glazing Because of its exceptional coating durability, ECLIPSE reflective glass' coated side can be used in first or second surface applications in single glazing or on any of the four surfaces of an insulated glass unit. As in any first surface installation, a review should be made of potential problems caused by surrounding materials, such as stains from weathering steel or concrete.

Compatible With Most Sealants ECLIPSE reflective glass is compatible with most construction silicones and the sealants commonly used in the manufacture of insulating glass units. Specific compatibility questions should be directed to the sealant manufacturer.

Low Heat Absorption Characteristics ECLIPSE reflective glass offers a unique combination of high solar reflectance, good daylight transmission and resultant low heat absorption. This allows it to be used without heat-treating in most vision applications. Heat treatment is required in instances where strength, safety or thermal stress are of concern.

Significantly Reduces UV Transmission Over 90% of the sun's damaging ultraviolet radiation is blocked by the ECLIPSE coating. This substantially limits problems of color fading and the breakdown of plastics. At the same time, ECLIPSE reflective glass will not adversely affect plant growth.

Resists Surface Damage The ECLIPSE coating is extremely durable. Handling, fabricating, packaging and installation rubs and scratches are minimized.

Distinctive Appearance With the coating glazed first surface, ECLIPSE reflective glass has a distinct, crisp appearance and a higher reflectivity. In second-, third- or fourth-surface use, the colors are deep and rich, with a subtle reflectivity. Viewed from the interior, ECLIPSE reflective glass transmits light with a definite warm color cast.



A Choice of Colors ECLIPSE reflective glass is available in four dramatic colors: blue-green, bronze, grey, and with the coating glazed first surface, a distinctive silver—regardless of substrate color.

Extremely Uniform Coating The ECLIPSE manufacturing process affords exceptional run-to-run consistency. This results in excellent performance and color uniformity—both in new construction and replacement applications.

Cleaning, Maintenance & Heat Treating

Complete, step-by-step guidelines in each of these areas are available from LOF and may be obtained by contacting your local representative.

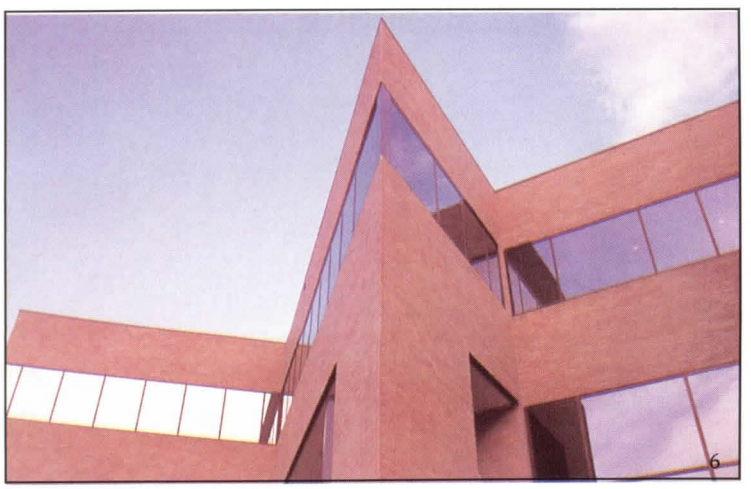
Performance Data

Product	Exterior Appearance	Nominal Thickness	Coated Surface	Direct Transmittance[1] Daylight %	Solar %	Ultra-[2] Violet %	Reflectance[1] Daylight Exterior %	Solar %	U-Values[3] Summer Eng.	Summer SI	Winter Eng.	Winter SI	Shading Coefficient[3] No Shade Europe	UK	US
ECLIPSE® Blue-Green	Bright Silver	6mm monolithic (¼″)	1	33	28	11	45	36	1.08	6.1	1.11	6.3	.43	.46	.44
	Blue-Green		2				30	18	1.09	6.2	1.10	6.2	.47	.52	.50
	Bright Silver	24mm[4] insulating (1″)	1	29	22	8	45	37	.56	3.2	.49	2.8	.34	.36	.34
	Blue-Green		2				30	19	.57	3.2	.49	2.8	.37	.41	.38

Product	Exterior Appearance	Nominal Thickness	Coated Surface	Direct Transmittance[1] Daylight %	Solar %	Ultra-[2] Violet %	Reflectance[1] Daylight Exterior %	Solar %	U-Values[3] Summer Eng.	Summer SI	Winter Eng.	Winter SI	Shading Coefficient[3] No Shade Europe	UK	US
ECLIPSE® Grey	Bright Silver	6mm monolithic (¼″)	1	20	29	10	45	36	1.08	6.1	1.11	6.3	.43	.47	.45
	Grey		2				13	12	1.10	6.2	1.10	6.2	.49	.55	.53
	Bright Silver	24mm[4] insulating (1″)	1	18	23	7	45	37	.56	3.2	.49	2.8	.35	.37	.35
	Grey		2				13	13	.57	3.2	.49	2.8	.39	.43	.40

Product	Exterior Appearance	Nominal Thickness	Coated Surface	Direct Transmittance[1] Daylight %	Solar %	Ultra-[2] Violet %	Reflectance[1] Daylight Exterior %	Solar %	U-Values[3] Summer Eng.	Summer SI	Winter Eng.	Winter SI	Shading Coefficient[3] No Shade Europe	UK	US
ECLIPSE® Bronze	Bright Silver	6mm monolithic (¼″)	1	25	30	8	45	36	1.07	6.1	1.11	6.3	.44	.47	.45
	Bronze		2				18	14	1.09	6.2	1.10	6.2	.49	.55	.53
	Bright Silver	24mm[4] insulating (1″)	1	22	24	6	45	37	.56	3.2	.49	2.8	.36	.38	.36
	Bronze		2				18	15	.57	3.2	.48	2.7	.40	.44	.40

1. Nominal values shown. Tolerance ±3.
2. The UV Solar Transmissions are based on the standard intensity versus wavelength for the sun's radiation when the sun is at 60° zenith angle and measured at normal incidence to the glass surface.
3. Winter U-values are based on an outdoor temperature of −18°C (0°F), an indoor temperature of 21°C (70°F), and a 24 kph (15 mph) wind velocity with no sun. Summer U-values and shading coefficients are based on an outdoor temperature of 32°C (90°F), an indoor temperature of 24°C (75°F), a solar intensity of 789 W/m² (250 Btu/hr.×ft²), and a 12 kph (7.5 mph) wind velocity. ''Eng.'' units are Btu (hr.×ft²×°F). ''SI'' units are W/m²K.
4. 24mm (1″) insulating glass constructed of 6mm (¼″) glass outboard, 12mm (½″) airspace, and 6mm (¼″) clear glass inboard.



Cover photo:
A.B. Warren Development Building
Tucson, Arizona
ECLIPSE® Bronze #1 Surface

1 Christofer Oaks, Phase II
Sacramento, California
ECLIPSE® Blue-Green #2 Surface
Bent Glass Application

2. Rainbow Health Center
Miami, Florida
ECLIPSE® Grey #1 Surface

3. San Ramon Recovery Center
San Ramon, California
ECLIPSE® Bronze #2 Surface

4. Quadrant Corporate Center
Bothell, Washington
ECLIPSE® Grey #2 Surface

5. SeaGate Centre
Toledo, Ohio
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6. Arapaho Office Building
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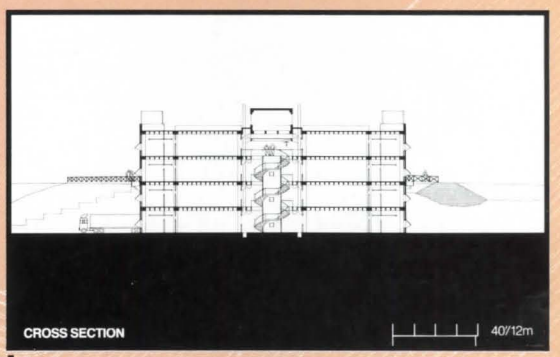
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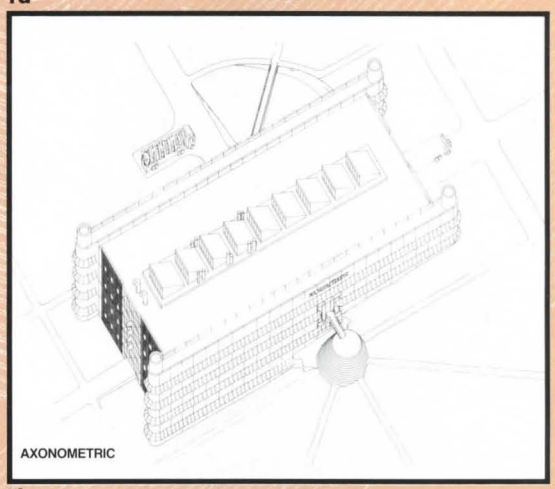
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In Progress

This month's "In Progress" describes new architecture in Atlanta. The city's continuing growth has given architects an opportunity to devise appropriate images for a city in transition. *Claire Downey*



1a

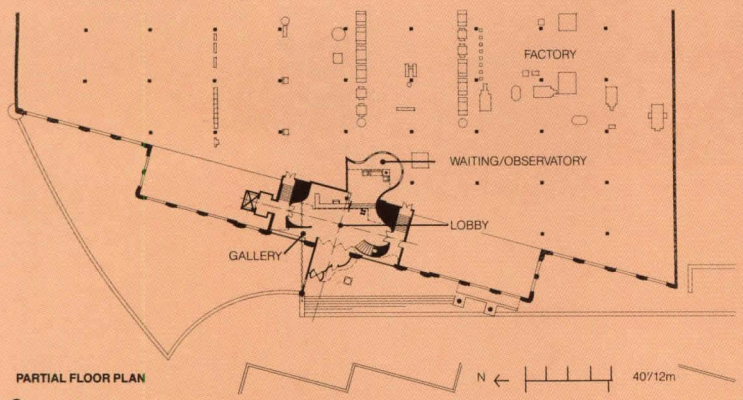


1b

1 Manufacturing Research Center, Georgia Institute of Technology, Atlanta. *Architects: Lord & Sargent Architecture, Atlanta.* Located on an urban campus, this 110,000-square-foot speculative building contains offices and research laboratories flexibly organized around a 60-foot-high central bay that doubles as a utility shaft and a light court. The concrete frame is clad in clear curtain wall at the light court, exposing the building's section and activities to view. Details based on oversized images of cogs and gears will appear at the building entries and around the central stairs and elevators. Construction will begin in the fall.

(continued on next page)

1c DETAIL AT ENTRANCE

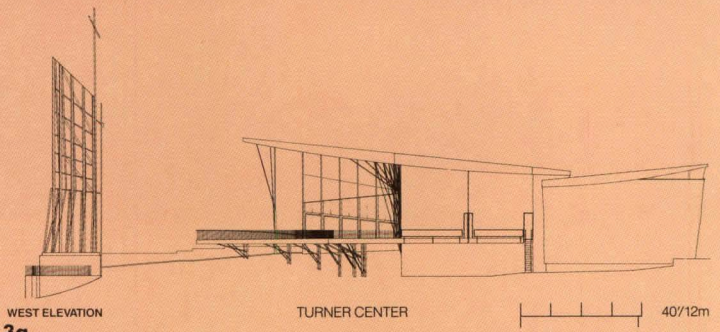


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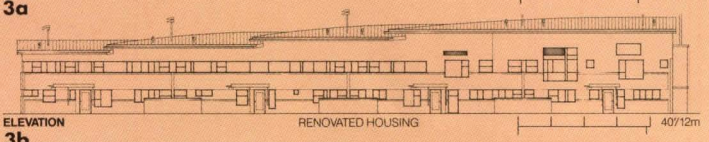


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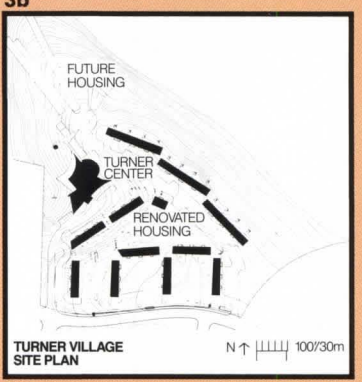
In Progress *(continued from page 51)*
2 The Atlanta Bakery Intervention, Atlanta. *Architect: Rob Miller, Atlanta.* When RJR Nabisco moved its corporate headquarters to Atlanta, the company's local bakery assumed a showcase role. To adapt the 1939 limestone-faced plant to welcome visitors, the entry grounds have been redesigned and a 5400-square-foot addition proposed. The geometries of the addition are intended to recall the productive activity of the bakery, and the shift in angle reconciles the front of the bakery—originally determined by a railroad siding—with the axis of the structure behind it.



3a

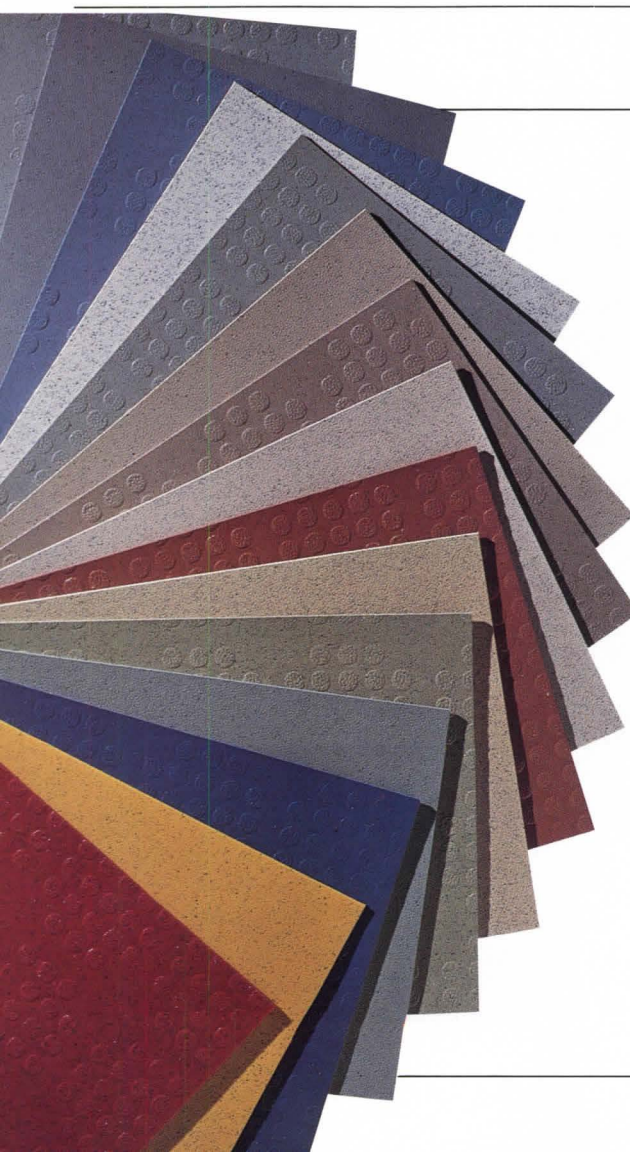


3b



3c

3 Turner Village, Candler School of Theology, Emory University, Atlanta. *Architects: Scogin, Elam & Bray, Atlanta.* Emory University's ambitious building program will continue with a "village" comprising a new conference and community center and 44,000 square feet of renovated apartments. The communal and meeting spaces of the D. Abbott Turner Center will overlook the glazed cylindrical chapel adjoining it. Though only 13 feet in diameter, this chapel will be the focal point of the complex. New metal roofs added to the old masonry apartment structures will be stepped along lines radiating from the chapel.
(continued on page 54)



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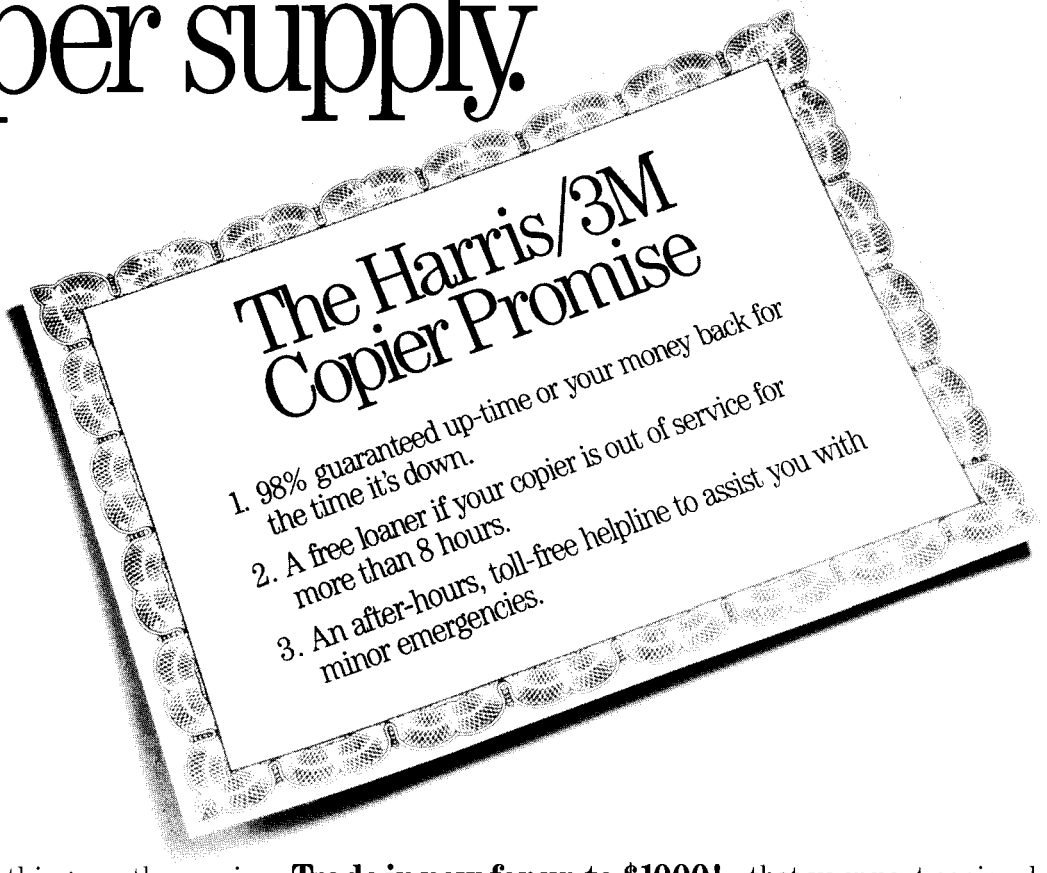
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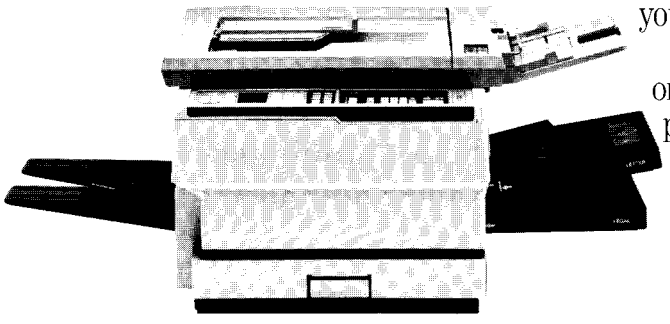


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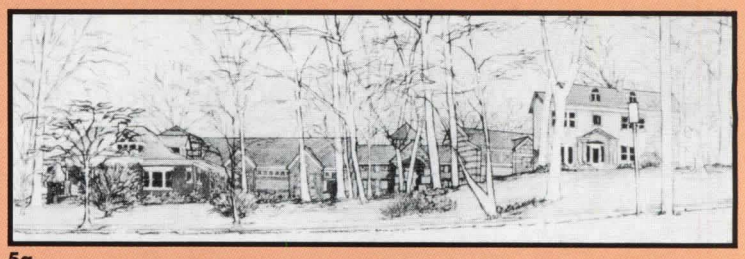
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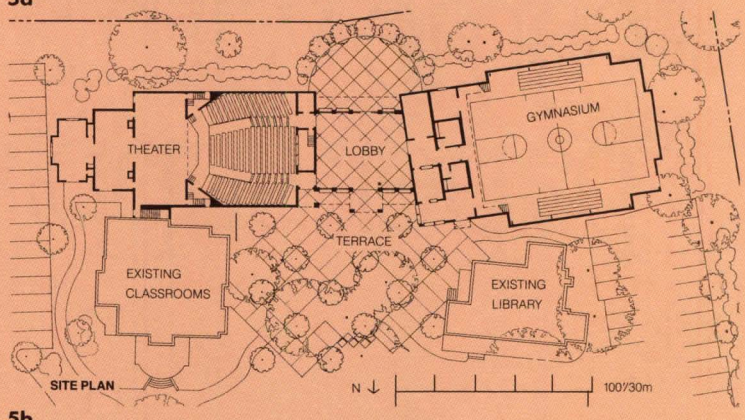
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4



5a

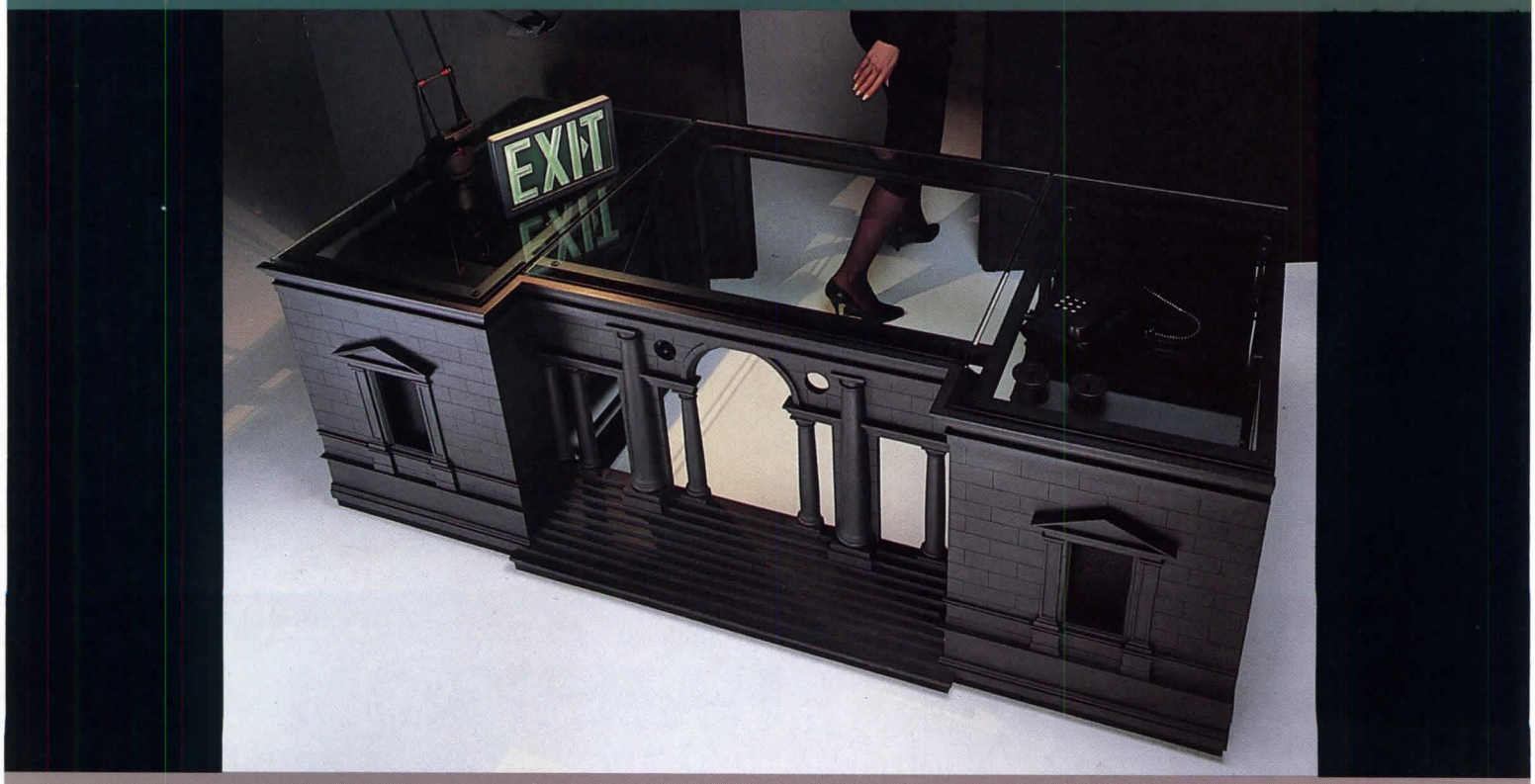


5b

In Progress *(continued from page 52)*
4 Branch Library, Alpharetta, Georgia. *Architect: Anthony Ames, Atlanta.* Part of the expansion plan of the Fulton County library system, just outside of Atlanta, this 10,000-square-foot building is square in plan, with most of the interior a single open area for reading and stacks. Support offices and public meeting spaces are concentrated in one corner and laid out at an angle related to the entrance axis. Between a concrete block plinth and a gridded metal fascia, walls are faced with cementitious panels; ribbon windows are at eye level for seated readers; an undulating glass block wall marks the entry. Construction is scheduled to begin this spring.

5 The Performing Arts and Athletic Center, Paideia School, Atlanta. *Architects: Dowling Architects, Atlanta.* Located in the Druid Hills Historic District in North Atlanta, this 21,000-square-foot project includes a 378-seat auditorium and a gymnasium for a private school. To preserve the image of freestanding houses in a rolling landscape, established by Olmsted in his plan for Druid Hills, building forms have been broken down to residential scale. Varying patterns of brick veneer walls reduce the apparent bulk, and details such as window mullions will reflect the character of historic houses on the site. Completion is scheduled for December of this year. ■

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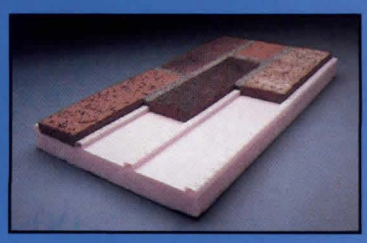
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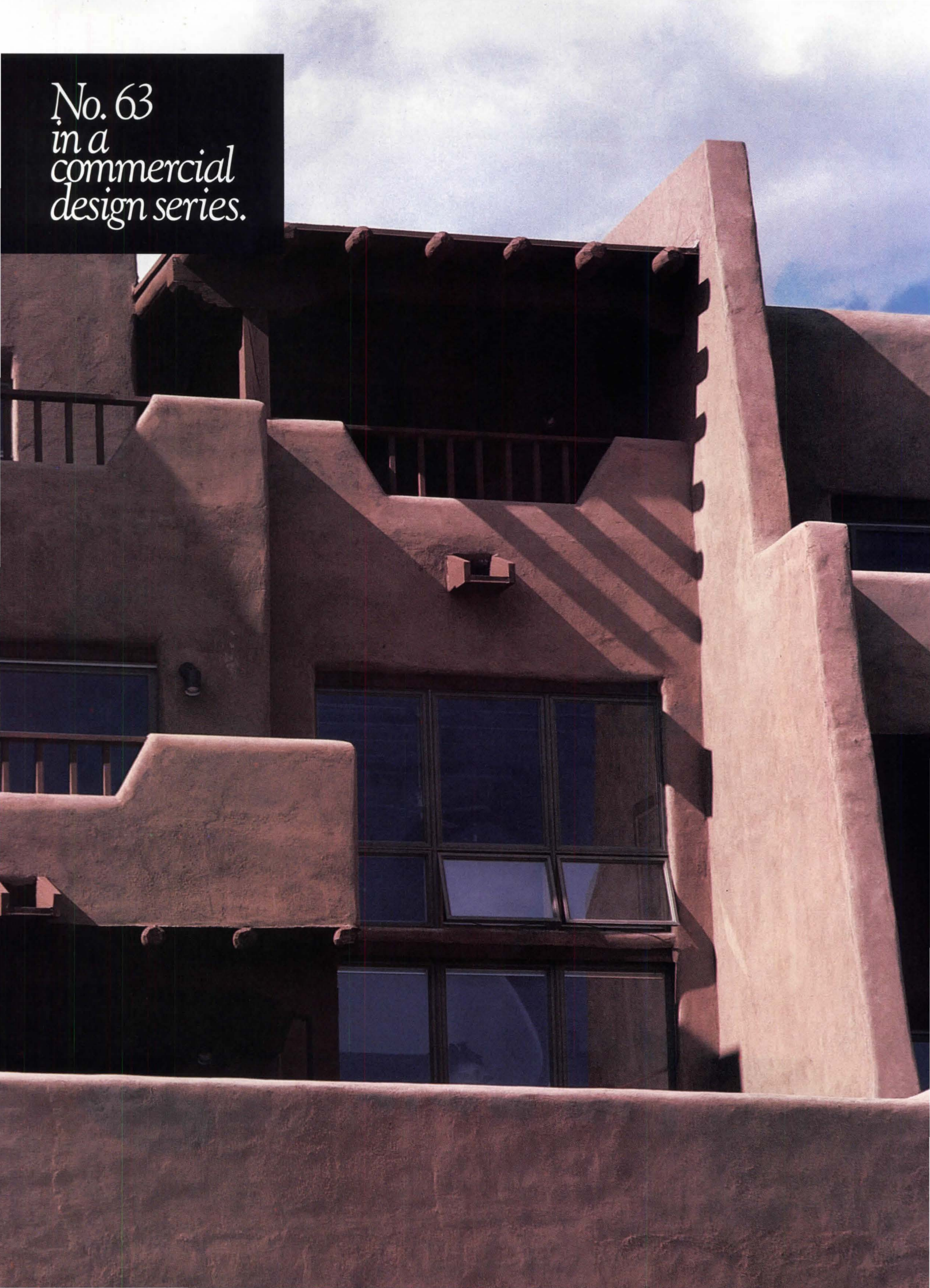
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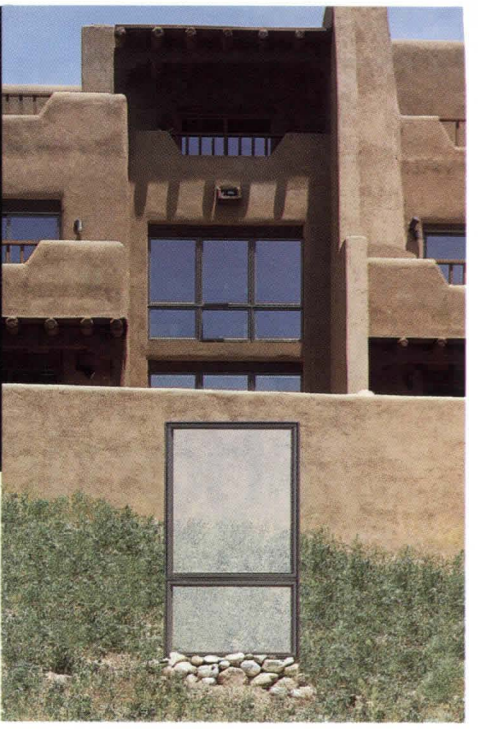


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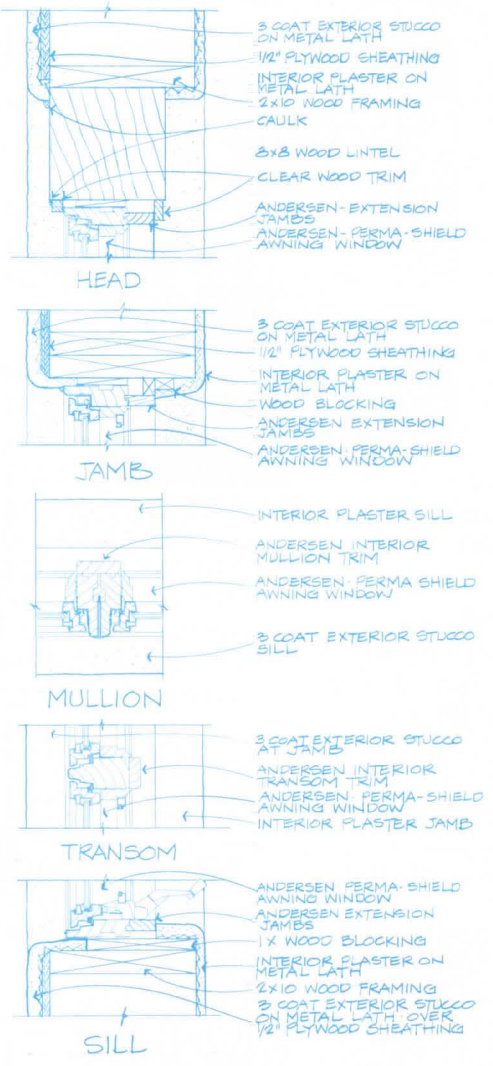
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Placita de Cumbre Condominiums, Santa Fe, New Mexico

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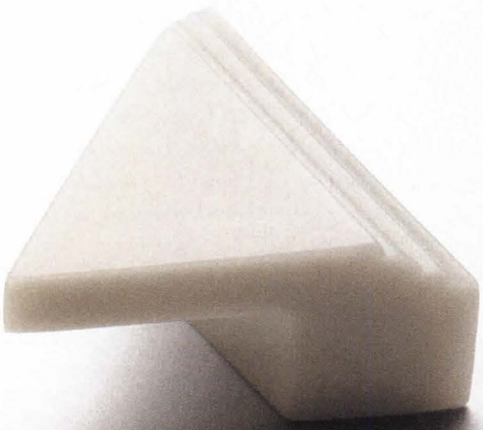
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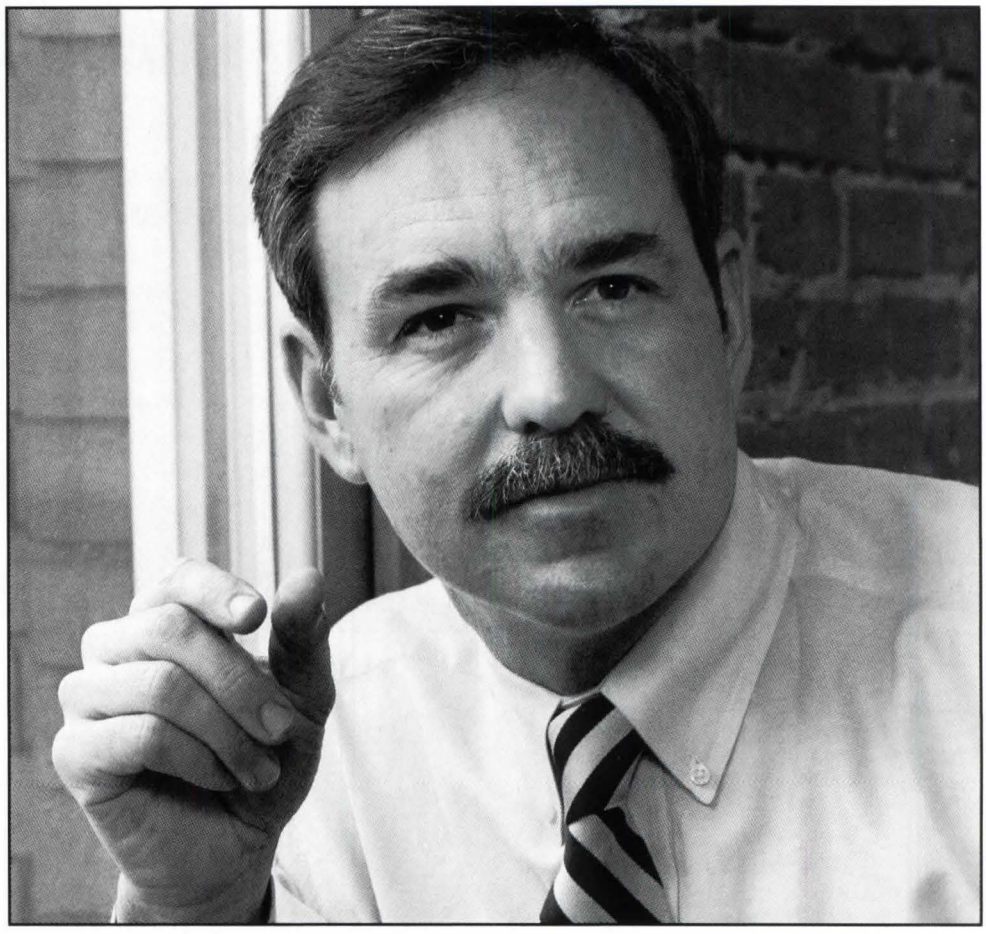
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"The DPIC education program has caused us to do continuing education, at the most basic contract level, that we probably wouldn't have gotten around to doing as a whole group. There may have been a person here or there that would have been enthusiastic about it, but their premium credit program requires all partners and technical staff to participate and take the exams. So, without the program, I think it would have been unlikely we would have gotten 100% participation. But because it is required, we do get it. In fact, we are considering making the DPIC tests, including reading the book, a requirement for all staff.

I can't imagine anybody not participating in the educational program, because of the cost savings aspect of it. I mean, let alone the fact that it can help your practice.

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You might find another carrier that could provide the same insurance for that net amount. But I think DPIC has been conscientious, in not saying, 'OK, we'll lower our price and forget about the educational program', and I think that speaks well for them."





Jack Corgan is a principal of Corgan Associates Architects, a 65-person firm based in Dallas, Texas. He is also a former Assistant Professor of Architecture at Oklahoma State University. We value our relationship with his firm, and thank him for his willingness to talk to you about us.

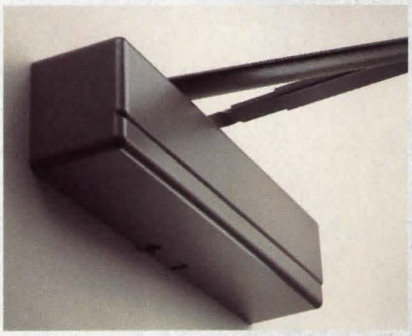
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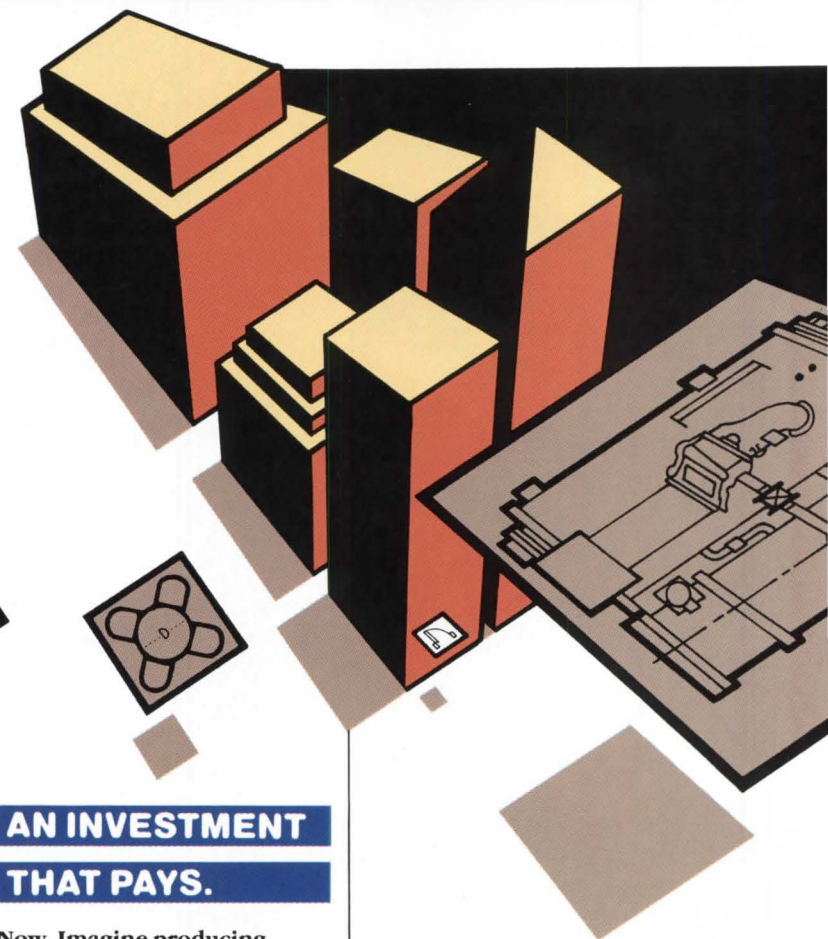
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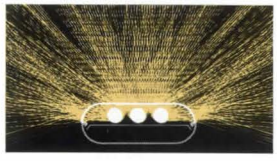
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P/A Practice

Failures: Raymond A. DiPasquale discusses the detailing of pre- and post-tensioned concrete.
Specifications: William Lohmann describes the content of various parts of Division One.



Drawing: Lisa M. Mangano

Failures: Prestressed Concrete

The tensioning of concrete is a simple structural concept, although its detailing can be difficult. Unlike other materials, which move because of temperature changes, prestressed concrete is always moving because it is under constant stress. In the case of precast, prestressed concrete, designers often forget to provide for this movement and build the precast element solidly into their structure. Several failures can be attributed to a misunderstanding of prestressing, and inattention to its bearing details.

Pretensioned Concrete

One such failure was the Antioch, California, High School gymnasium roof collapse, where 40-foot-long prestressed, pretensioned concrete double tee elements gave way, with practically no warning, after 21 years of service. The failure was caused by inadequate reinforcement near a deep notch at the ends of the tees and by welded connections at both ends.

At the time the Antioch building was built (1959), prestressed, precast concrete was a fairly new technique, and the designers approached this system as they would normal precast concrete, welding both ends of members to provide lateral stability. The practice of welding both ends of precast, prestressed members was discontinued in the 1960s because it led to a buildup of stresses and subsequent cracking at the connections. Building stability had to be provided by other means: shear walls or attachment at the tops of members.

In a recent failure of a pretensioned concrete tee roof, there were several instances where the stresses were so great at the anchored ends that the concrete had separated and fallen away from the supporting plates welded to the structural steel beam. If it were not for adjacent structural members picking up the extra load, the roof would have collapsed.

(continued on page 68)

Specifications: Division One

Division 1, entitled General Requirements, was a totally new concept when it was introduced and remains an enigma for some practitioners today. It is the intended location in the project manual for project administrative requirements. It should not contain contractual and other legal provisions, which are described in the general and supplementary conditions, or information about materials, products, and building systems, which is covered in Divisions 2 through 16.

There is an inevitable overlap of Division 1 requirements with the general conditions, particularly standard documents such as AIA Document A201. Such documents are usually designed to stand alone without amplification on small jobs. Yet even the new 1987 edition of A201 makes no mention of project meetings, temporary facilities, many contract closeout details, and other requirements which, when specified, can resolve some administrative problems before they arise under the pressure of construction activity.

Where should such information be located? The Engineers' Joint Contract Documents Committee has published (jointly with AIA and CSI) the "Uniform Location of Subject Matter—Information in Construction Documents" (AIA Document A521). It assigns subjects to the general conditions, supplementary conditions, and Division 1. CSI's Masterformat further suggests locations of subjects.

Several major Division 1 headings deserve some discussion.

01010 SUMMARY OF WORK: Section 01010 is the place in the contract documents where the specifier can describe the scope of the entire project and address factors that affect it, such as award of single or multiple contracts, pre-purchased materials and equipment, work that will be done by the owner,

(continued on page 68)

Practice Points

Housing starts **fell 16.2 percent in December, the most severe drop in three years, according to the Commerce Department. Most of the decline was in multifamily construction, which fell 33.6 percent. Analysts blamed higher interest rates rather than the stock market collapse for the dramatic decline. The total drop in starts for 1987 was about ten percent.**

Scheduling computer time **poses the "major challenge" to CADD managers, says a survey by Design Systems Strategies. As one manager put it, the problem is one of "scheduling a finite, limited resource to a constantly evolving creative process." Other problems mentioned were productivity, training, and operator efficiency.**

Shifting demographics **could affect the housing and education markets in coming years. American Demographics projects significant increases (over 10 percent) between 1987 and 1993 in the numbers of people in the 5–14, 35–44, 45–54, and 75 and older age groups. Other age groups will decline or show modest gains.**

Superinsulation techniques **are being used in new construction by 59 percent of insulation contractors surveyed by Energy Design Update. The respondents identified R-38 attic insulation, double stud construction, and spray urethane in walls as the techniques most often used.**

A construction library **housing information for contractors, architects, and engineers has opened as part of Portland, Oregon's Multnomah County Library. The facility, said to be the first of its kind in a public library, includes audiovisual materials, construction codes, industry literature, and other related information.**

Failures *(continued from page 67)*

In another case, a pretensioned, precast concrete beam had been anchored at both ends, and it showed the familiar backward-sloping crack (usually at only one end). If a masonry wall had not been beneath the member, this beam, too, would have collapsed.

Prestressed Concrete Planks

Prestressed concrete planks, usually about 40 inches wide and up to 40 or 50 feet in length, present their own set of problems. These planks are supported on either masonry bearing walls or on a structural steel frame. Anchorage to permit movement at one end must be provided, yet unless the structure has independent shear walls, these planks may also have to provide lateral stability to the building, presenting a conflict between the structural integrity of the whole building and that of its individual members. Also, when concrete planks are part of a floor system, they are generally built into the construction, so any movement in the planks will affect wall elements or other portions of the structure.

Another problem is the camber, usually present in these asymmetrically prestressed elements, that makes it difficult to detail the longitudinal edge of the plank at parallel walls. The camber makes it awkward to build the edge of the plank up to a masonry wall. If that is done, the support that the wall provides the edge of the plank is seldom accounted for in the prestressing of the plank itself.

Then there is the problem of how to fill the variable gap at the plank's edge. If supported at their ends as well as at their edges, concrete planks act like two-way slabs, particularly at the ends of the building. When no topping is applied, there are usually vertical and horizontal separations at the joints of the planks close to the side wall supports. What you have is a series of independent planks that depend upon the shear key between them to provide for vertical continuity within a system that wants to act like a two-way monolithic slab. This produces normal stresses that tend to open up the joints. Some of these problems don't manifest themselves immediately but take months or even years to develop, since movements generated by creep and shrinkage are slow.

Because of their movement and camber, prestressed planks have always required careful detailing. Not only should anchorage be provided at only one end of the prestressed member, and staggered from one end to another on adjacent beams, but a positive bond breaker should be used at the free bearing end. Care should also be taken to ensure that surrounding construction does not lock in the free end under dead load. The task of detailing thus goes beyond support itself: The designer must consider control joints and joints in adjacent construction to accommodate the movement created by the structural system.

Post-tensioned Concrete

Cast-in-place concrete that is tensioned after it has gained initial strength has another related set of problems. Some of these problems have to do with stress corrosion, excessive stress at the anchorage ends, and the stiffness of members that are cast integrally with the prestressed elements but perpendicular to the line of the prestress. In several cases, improper detailing or improper proportioning of the members has caused excessive cracking and, in some instances, failure.

The specific problems of post-tensioned concrete include:

1. Inadequate compaction of the concrete behind anchorage plates, whether they be at the stressing end or the anchorage end. Additional reinforcement should be provided in the area of the anchorage to help distribute high stresses.

2. Insufficient structural capacity or excessive cracking when the ends of a prestressed member are cast integrally with large columns or massive walls and effectively anchored, reducing the prestress.

3. Stress corrosion cracking of metals, which occurs when high-strength alloy steels are under high tensile stress in the presence of corrosive environments. Prestressed (usually post-tensioned) parking structures in locations where deicing chemicals are used for ice control during the winter are likely candidates for stress corrosion (and sometimes hydrogen embrittlement). At the anchorage ends, where stresses are highly concentrated, if salts are permitted to permeate the concrete, corrosion of the anchoring wedges or the post-tensioning strand itself can take place and failure can be sudden and without warning. When a strand fails at the anchorage end, it is literally catapulted out of the structural system with sometimes disastrous results. It is analogous to a rubber band stretched and then cut. Stress corrosion cracking, which forms perpendicular to the tensile stress (the worst possible situation), can occur anywhere along a strand's length if its protective paper or plastic sheath bond-breaker is damaged during concrete placement or installation of the strand.

4. Lack of structural redundancy if one or two strands fail. In prestressed concrete structures, if prestress is lost, there is seldom enough backup capacity to guarantee structural integrity. If one or two random strands fail in a slab, the consequences are minor, but if they fail in a structural beam, it could be serious. Structural members that are essential to maintaining the overall structural integrity of a building must have sufficient mild reinforcement to assure stability if some strands fail. Structural redundancy is an important concept, and the designer must make a realistic evaluation of the potential for loss of prestress.

5. Excessive column cracking on the outside faces of the upper-story columns at the exterior edge of a prestressed, post-tensioned parking structure. The shortening of the longitudinal prestressed beams that carry the parking deck produces bending in the exterior topmost columns where there is little dead load to counter the excessive tension. In lower stories, the problem is not noticeable because there is sufficient compressive stress to eliminate the tension produced by the prestressed beam. And the interior columns don't have this problem because they are not eccentrically loaded. A possible solution to the problem is the addition of vertical prestress in the outside faces of the columns that support the upper stories to eliminate potential tension. But the designer must be sure that the effect of this vertical prestress does not add too much stiffness. Sophisticated computer programs are available today that consider these factors.

Prestressed concrete is a viable structural method that allows structural material to be used in ways that would not otherwise be possible. The important point to remember is that prestressing produces structural movement because of the nature of concrete under constant compressive stress. If one understands this and considers the "living" nature of the material, then detailing that accommodates the movement will be successful. The incentives to do so are great, for few structural systems have such tremendous forces locked up inside. ***Raymond A. DiPasquale*** ■

The author is Professor of Architecture at Syracuse University and a practicing structural consultant, whose Ithaca, N.Y., firm specializes in the investigation of building failures.

Good references and guidelines are published by the Prestressed Concrete Institute, Chicago, IL (312) 786-0300 and the Post Tensioning Institute, Phoenix, AZ (602) 870-7540.

Specifications *(continued from p. 67)*

sequence or phasing and requirements, and use of the premises. Because they relate directly to phasing of the work, additional details on partial occupancy by the owner (A201 Par. 9.9) also should be specified in this section.

01040 COORDINATION: The general conditions normally require the contractor to coordinate all portions of the work unless otherwise specified (A201 Subpar. 3.3.1). Special aspects of coordination should be described in Section 01040—cooperation with separate contractors, the role of the owner's representative, mechanical/electrical coordination, lines of authority and communication, related schedules, and coordination drawings.

01100 SPECIAL PROJECT PROCEDURES: According to AIA Document A201, the contractor is responsible for developing and implementing "means, methods, techniques, sequences and procedures" (A201 Subpar. 3.3.1) necessary for completion of the work. Hence, use of the term "procedures" in the title of Section 01100 is questionable; "requirements" might be more appropriate. Nonetheless, special requirements are often specified in this section for unique kinds of work, such as demolition and remodeling, and for work in sensitive areas, such as airports. Some owners request that the architect include their contractor guidelines in the specifications. When writing this section, however, avoid detail on safety programs (A201 Subpar. 4.2.3).

01200 PROJECT MEETINGS: At least the minimum requirements for project meetings should be specified in this section. Pre-demolition and pre-construction meetings, scheduled and conducted by the contractor, often set the tone for

(continued on page 70)

C R Y S T A L I N E

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Specifications *(continued from p. 68)*
work that follows. The owner, architect, contractor, and major subcontractors should attend. Appropriate topics for discussion include submittal procedures, insurance, communication routes, and payment schedules. A separate meeting should be scheduled by the contractor, attended by all subcontractors, to discuss housekeeping procedures, safety program, use of temporary facilities, and other matters directly related to site operations. Regular progress meetings during the work provide an important flow of information on submittal priorities, potential scheduling problems, and proposed work changes.

01300 SUBMITTALS: Submittals seem to be adequately described in AIA document A201—shop drawings (Par. 3.12), construction schedules (Par. 3.10), schedule of values (Par. 9.2), and many others. But detail is lacking. How many copies of shop drawings? Prints or sepias? To whom? Who pays return shipping costs for large samples? What form is most appropriate for the schedule of values? How often should the construction schedule be updated? Does the owner want a copy? And how about progress reports, test reports, operation and maintenance data, and construction photographs? They are not even mentioned in A201, and should be discussed here.

01400 QUALITY CONTROL: Again, the general conditions only establish the contractor's responsibility for initial inspection of the work (Par. 3.3.4) and the architect's responsibility for followup and final inspections (Pars. 4.2.6 and 4.2.9). General testing requirements derive from Par. 13.5 on "Tests and Inspections." Section 01400 should add special testing requirements and detail on qualifications and duties of the testing laboratories, calibration of equipment, reports, access to the site, sampling, and cooperation between the contractor and laboratory personnel.

01500 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS: AIA Document A201 covers progress cleaning and exposure to certain hazardous substances. But what about temporary utilities, construction offices, signs, temporary hoists and elevators, scaffolding, fences and other enclosures, haul roads, traffic control? Granted, these topics border on "means, methods, etc.," but it is usually appropriate to specify minimum requirements. Section 01500 should also describe working conditions in existing buildings, interface with the owner's security program, responsibility for operation of heating and elevator equipment, payment of excess charges from the local power company, and similar detail.

01600 MATERIAL AND EQUIPMENT: Nothing is said in AIA Document A201 about shipping costs, storage and protection of materials, or review requirements for proposed substitutions. The latter is crucial. Without some restrictions on substitutions, specifications in Divisions 2 through 16 are subject to breakdown. Section 01600 should stipulate that substitutions will be considered only when required for compliance with code or insurance requirements, when a specified product is proven unavailable or unable to perform properly, when a manufacturer refuses to certify performance of a specified product, or when a substitution would be substantially to the owner's best interest in terms of cost, time, or other considerations.

01700 CONTRACT CLOSEOUT: Construction contract closeout is a complex process and Section 01700 should reflect that. It is necessary to amplify the general conditions with detailed requirements for project record documents, final cleaning, operation and maintenance instructions, final adjustment of equipment, and final photographs. It is also useful to include a comprehensive submittals checklist for substantial and final completion, as in the following:

- Warranty required in the general conditions.
- Warranties required in the specifications or otherwise provided by subcontractors, suppliers, and manufacturers.
- Permits and certificates which are issued for the work.
- Drawings which were stamped and approved by the building department.
- Bonds.
- Certificate of insurance for products and completed operations.
- Certificates of inspection, testing, and acceptance by governmental authorities.
- Reports on final tests by the contractor.
- Reports on final adjustment of equipment.
- Verification of operation and maintenance instruction.
- Operation and maintenance manuals.
- Service and maintenance contracts, directories, and schedules.
- Keying schedule and keys.
- Extra stock, maintenance stock, and spare parts.
- Project record documents.
- Progress photograph negatives.
- Final photographs and negatives.
- Final application for payment and waivers of lien.

Division 1 sections can also serve as a means of standardizing administrative procedures within an architectural office, such as processing submittals, routing paperwork, coordinating testing programs, and evaluating substitutions, for example. Even when a client insists on using unfamiliar general conditions or an attorney prepares the supplementary conditions, the architect is expected to prepare Division 1 specifications, and should welcome the opportunity.

William Lohmann ■

The author is Specifications Manager at Murphy/Jahn in Chicago.

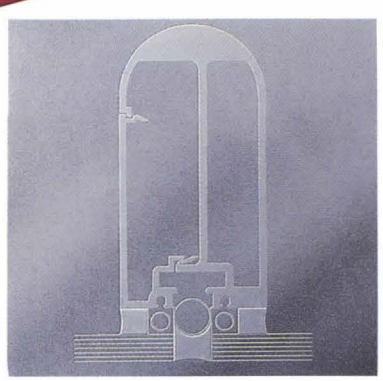


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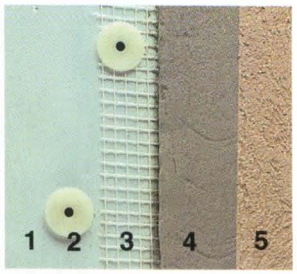
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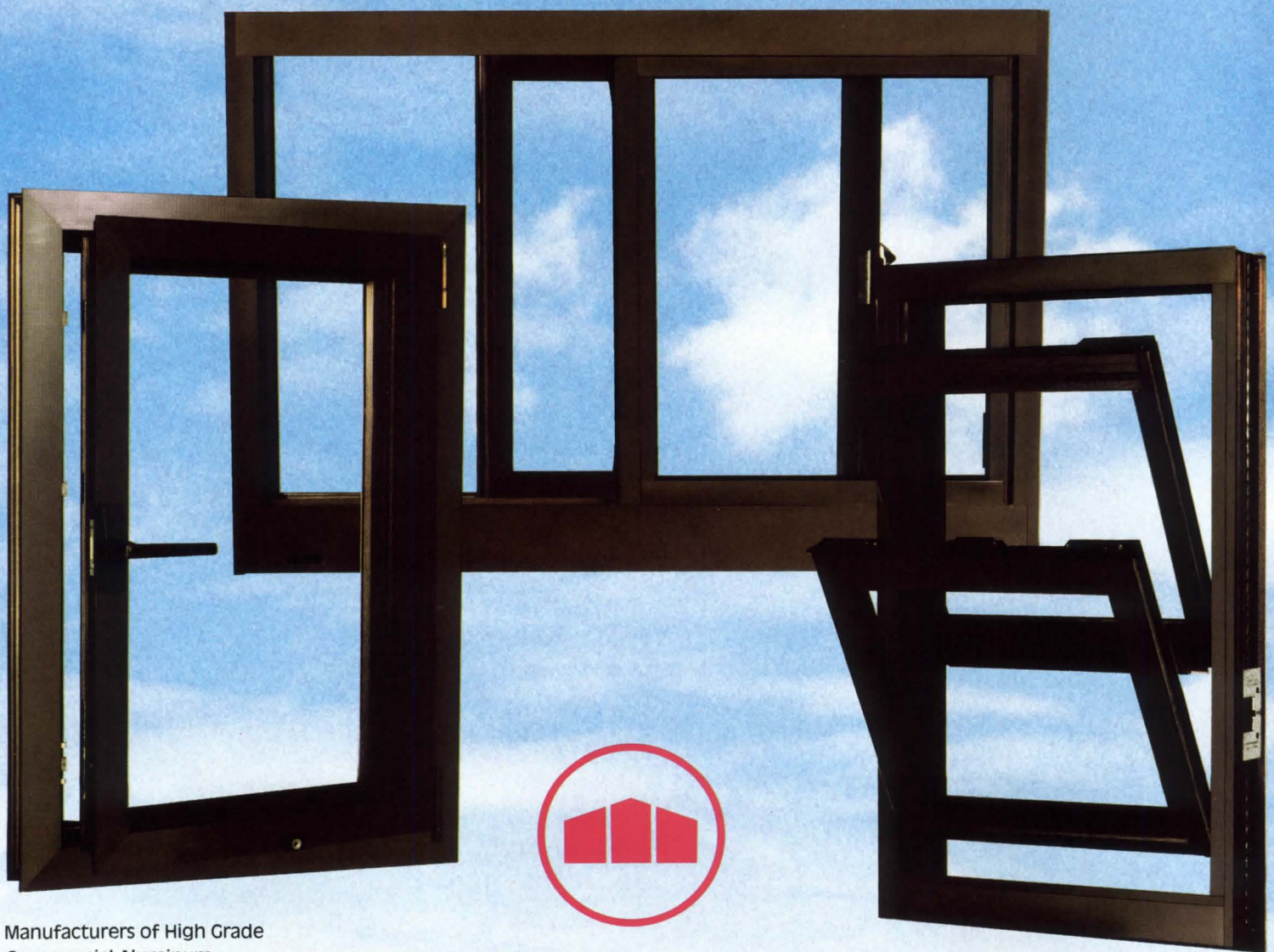


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Progressive Architecture

The New Urban Design

With the repudiation of the city envisioned by Modernists has come a new urbanism that is guided by public interests and focused on public place-making.

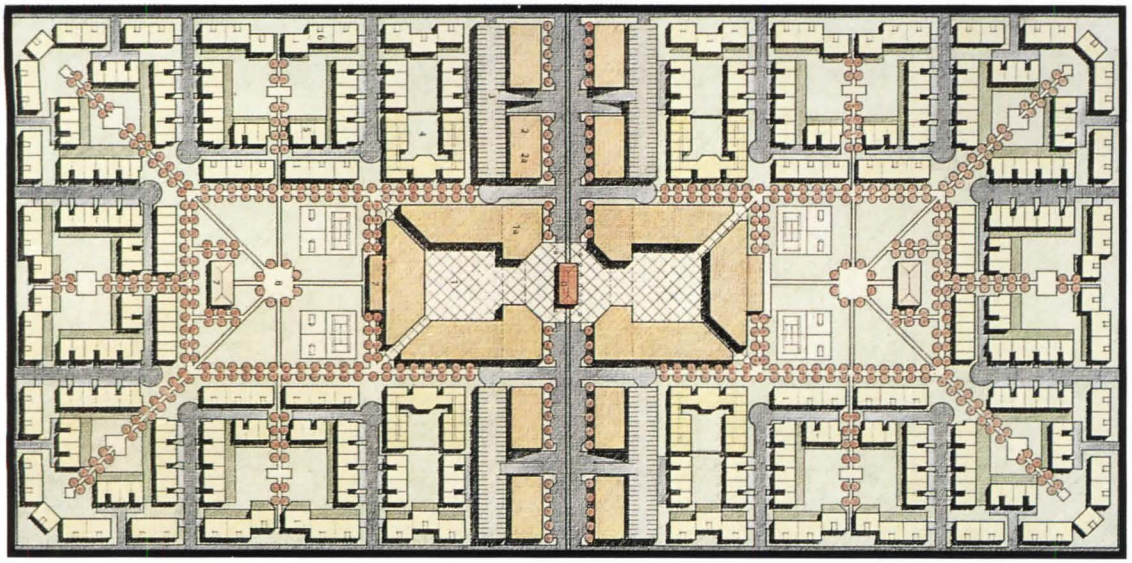
THE city of today is primarily a private city. Most of its open space, most of its transportation, most of its buildings, indeed most of the forces that shape it are private. That is what makes recent urban design so noteworthy. Reasserting the primacy of public space, public transportation, and the public interest, this work uses the traditional elements of cities—streets, squares, and promenades—and organizes them in traditional ways—along datums, around axes, and within grids. The result: public places that are not just the residue of private development, but the dominant figures in the city.

The ideas behind this approach to urban design are not new. They tap a rich vein of thought that runs from the 19th-Century urban analyses of Camillo Sitte, through the early 20th-Century writings of Werner Hagemann, to the teachings of Colin Rowe beginning in the 1960s. What is new is the widespread acceptance of this approach among architects and its steady realization in built form.

As with any new design direction, this work has had its share of critics. Some have argued that it is too focused on formal issues and not enough on the process through which those forms might be implemented. Others have argued that it pays too little attention to the needs of the people who will eventually live in the spaces created by these plans. Both are valid points, although misdirected, for the best of this new urban design pays very close attention to questions of implementation and livability.

The largest hurdle this work has to overcome is the still largely private nature of the modern city. Are such grand gestures in the public interest enough to counter the forces that isolate people in their private domains? By themselves, probably not. But as an accompaniment to a revived public interest and a vision of what form that might take, this work is compelling and critically important.

Thomas Fisher ■

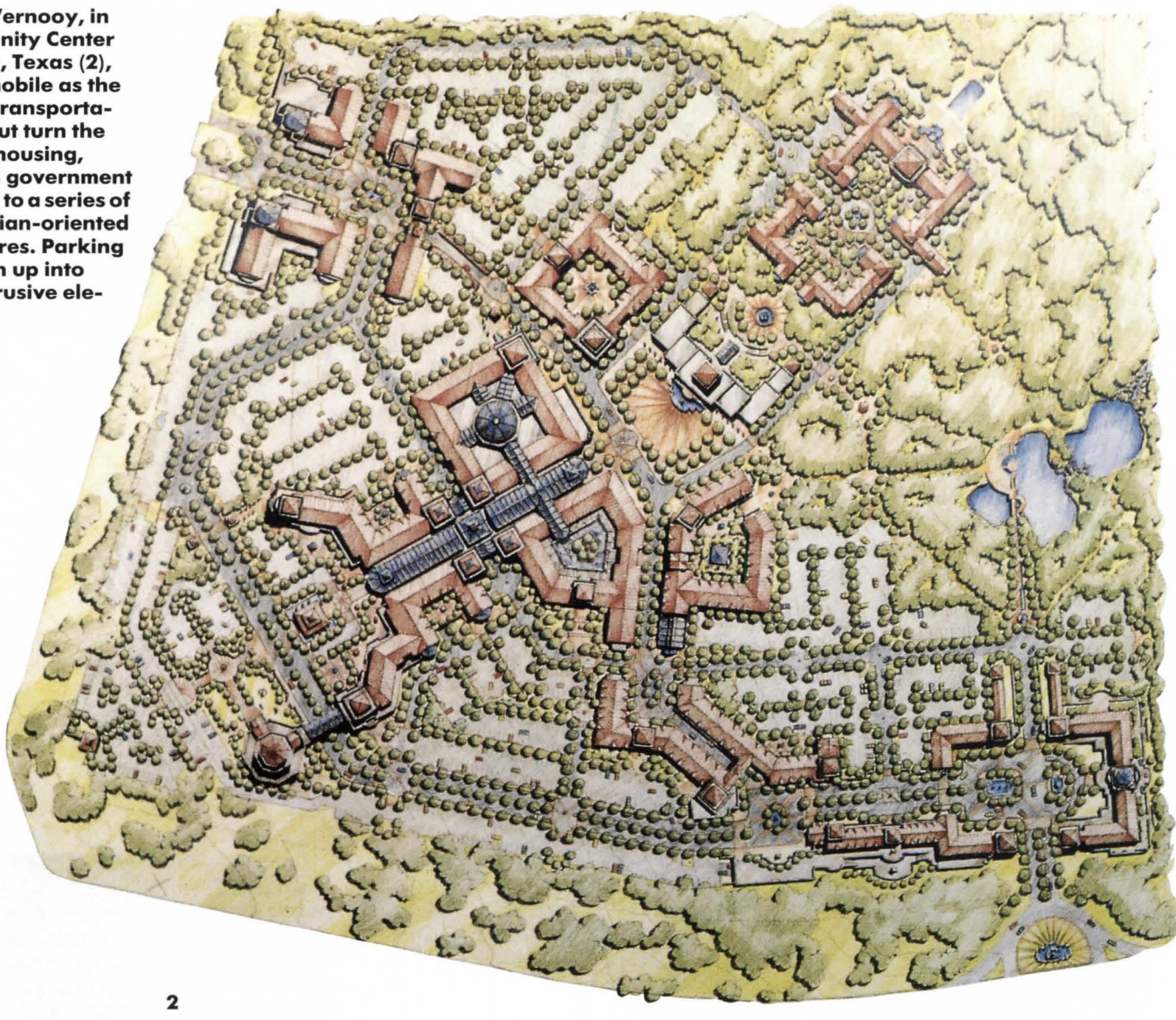


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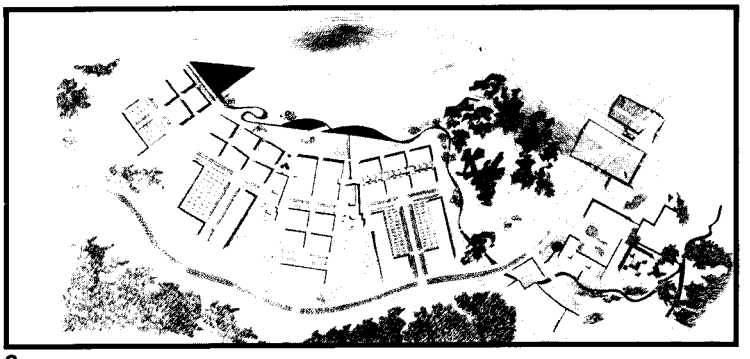
Public Circulation

The private automobile, which dominates the public landscape, has become one of the greatest challenges to urban designers. Peter Calthorpe and Mark Mack, in their pedestrian pocket proposal for Marin County, California (1), call for a new light rail system as a way of focusing commercial and residential development at the stations and reducing commuters' dependence upon the automobile. An interconnected series of parks and pathways gives people uninterrupted pedestrian access to the stations.

Black Atkinson Vernooy, in their 620 Community Center outside of Austin, Texas (2), accept the automobile as the major means of transportation to the site, but turn the development of housing, office, retail, and government buildings inward to a series of internal, pedestrian-oriented streets and squares. Parking areas are broken up into smaller, less obtrusive elements.



2



3

N ↖ 1000'/300m

Another idea guides an office complex developed by the Maguire Thomas Partners and IBM in Westlake/Southlake, Texas (3), designed by Mitchell/Giurgola Architects and the Office of Peter Walker & Martha Schwartz. Parking structures are used to enclose parking forecourts and to help define the precincts of office buildings as unified blocks.

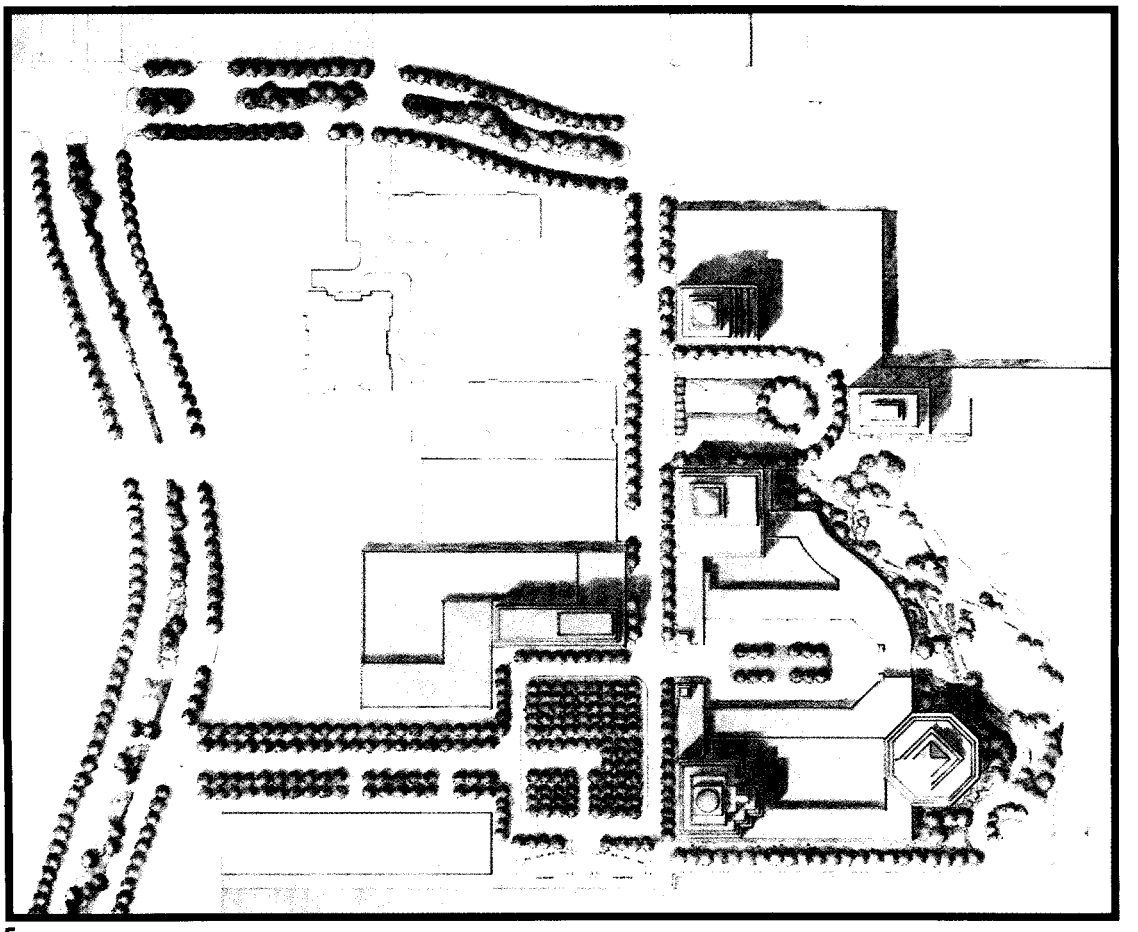


4

N ↗ 300'/100m

This condominium housing development in Hopkinton, Massachusetts (4), by Hisaka & Associates, also puts the public interest over the private automobile. Rather than let garages and drives dominate the site, Hisaka has tucked cars beneath the chateaulike clusters of row houses and enclosed drives and turnarounds within the clusters' central courtyards, thus preserving most of the site and its views.

Newport, a mixed-use development in Jersey City, New Jersey (5), designed by the Ehrenkrantz Group & Eckstut, shows how automobile access and parking can be minimized on a much denser urban site. The program required a parking ratio of one car for every housing unit; the solution places parking garages at the center of blocks and hides them behind five-story banks of housing.



5

N ↑ 100'/30m

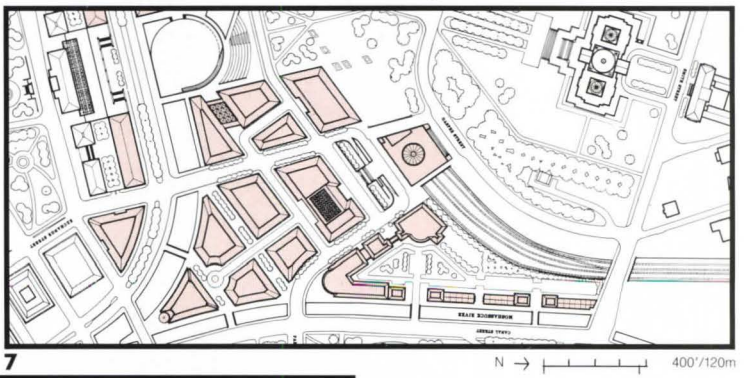
Public Space

It is in the creation and definition of public outdoor space, however, that the new urban design most obviously departs from the modern city. The rediscovery of the street grid is one notable feature of this new urbanism. The grid in the Hunter's Point development in New York (6), by Beyer Blinder Belle and The Gruzen Partnership, serves both to tie the new community into the larger urban fabric and to extend the old city out to the water's edge. The regular street grid also can give such developments a sense of cohesion and allow them to grow in smaller, incremental steps.



6

In the Providence Capital Center Plan by the New York office of Skidmore, Owings & Merrill (7), the public street grid is splayed so that the major streets focus on the dome of the state capitol. A public plaza and railroad station (P/A, March 1987, pp. 92–95) cap the end of the development.

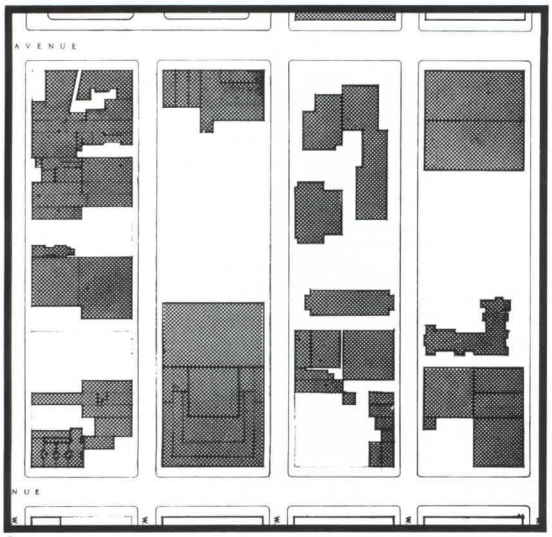


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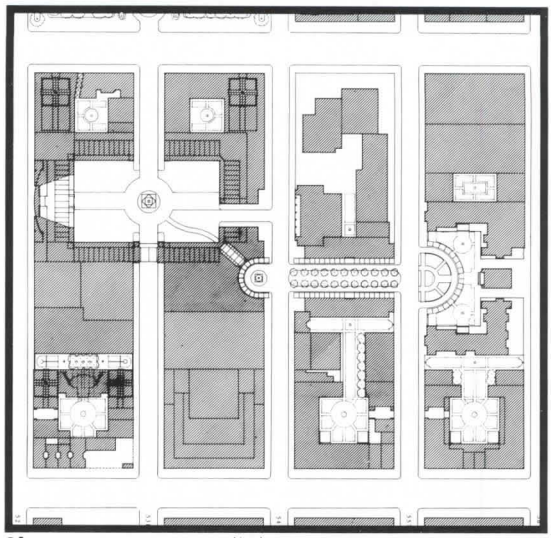


8

Another SOM project, this one by the Chicago office, also has a distorted grid to give visual and symbolic focus. Gateway East in East St. Louis, Illinois (8), employs larger, radial boulevards, oriented toward Saarinen's Gateway Arch. Each boulevard has a traffic circle, one of which serves as the center of a commercial district and the other, as the center for three residential neighborhoods. Park and recreational activities extend along the Mississippi River.



9a

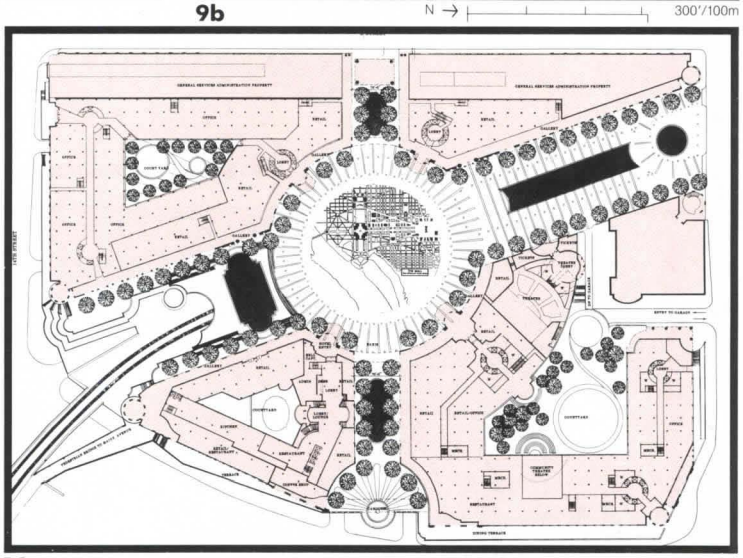


9b

N → 300'/100m

A number of other recent urban designs have set out, not to create a new street grid, but to work within and strengthen an existing one. The master plan for the Clinton Urban Renewal Area in New York (9), by Peterson/Littenberg Architects, increases the density of a street grid that has been weakened by many vacant lots. The plan also reconciles an urban renewal program that calls for extensive low- and moderate-income housing and a preservation district policy that calls for preserving existing structures and building compatible new structures. Filling in the vacant lots with modestly scaled housing, the architects establish a mid-block street, square, and walkway system to create a new center for the community.

The Portals (10), a Washington, D.C., project by Arthur Cotton Moore/Associates strengthens a grid of a different sort: L'Enfant's system of radial boulevards. The development consists of four large blocks of buildings that are shaped by the property's boundaries and the diagonal and orthogonal streets that intersect the site. Public open spaces, such as the circular plaza that bridges railroad tracks, are regular in their geometry, whereas the more private courtyards within the buildings are treated as residual space with irregular shapes.



10

N ↑ 200'/60m

A major advantage of the grid is its flexibility, able to bend or shift to accommodate geography or to expand in size or shape to highlight special uses. The Ewa Town Center in Hawaii, by Pereira Associates (11), uses the grid to full advantage. Part of the grid shifts at a 45-degree angle to run orthogonally to the adjacent mountain; part of it expands to embrace a hill near the center of the town, and parts of it open up to define neighborhood centers. Axes and focal points are expressed by widening certain streets into boulevards or plazas.

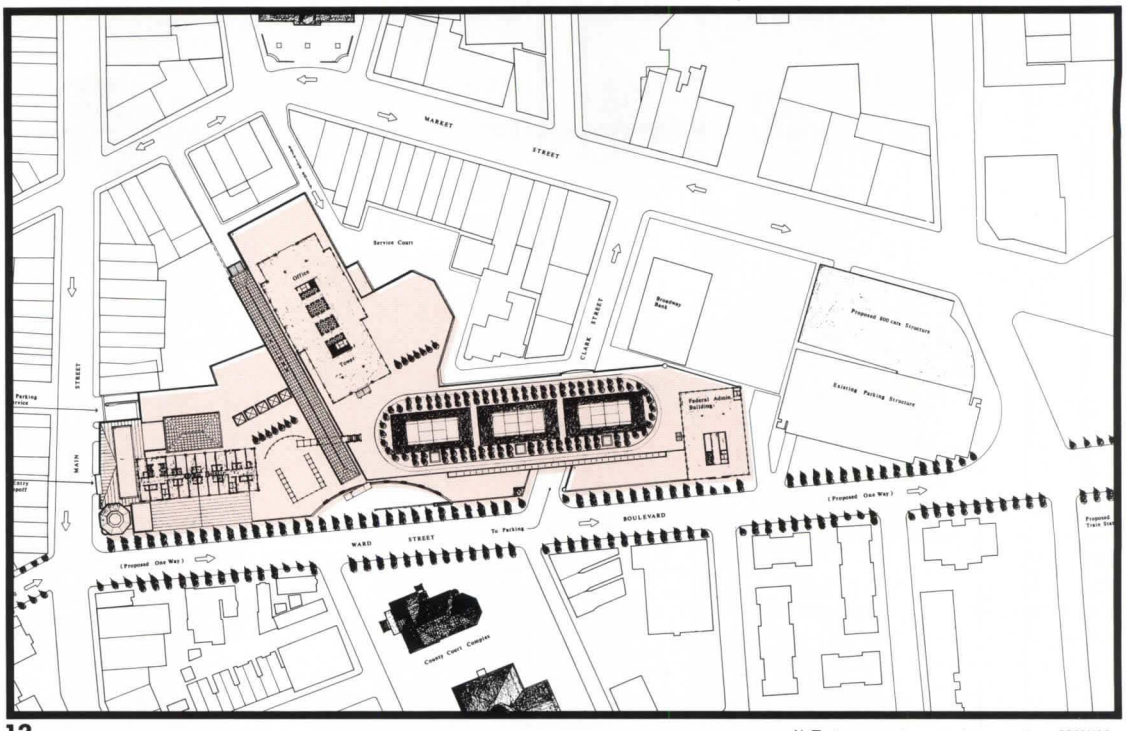


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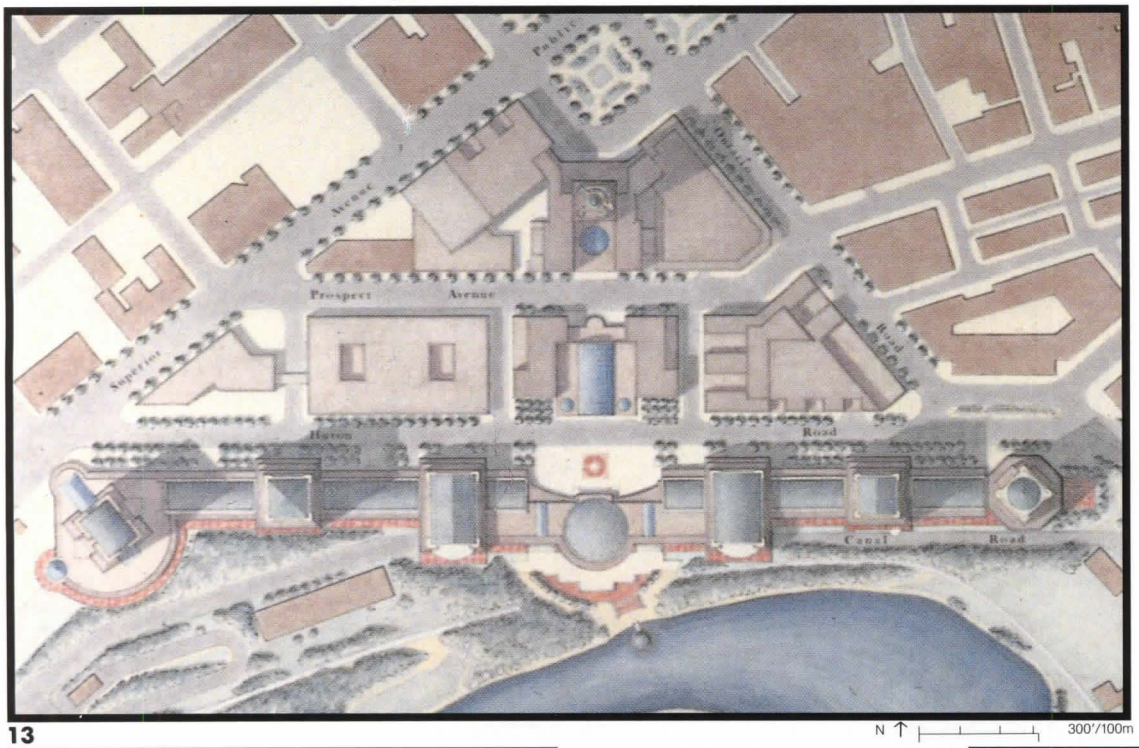
N ↑ 1000'/300m

New Urban Architecture

Most of these urban design schemes demand a new way of thinking not only about cities, but about their architecture. As public space vies with private, programmatic requirements in giving shape to buildings, the architecture becomes more complex and rich in form. The Hillier Group's Superblock development in Paterson, New Jersey (12), is a case in point. Its façade bows inward in response to the space occupied by public buildings across the street, its galleria aligns with and extends a side street, and its main block bridges another side street to tie the whole structure together. The building form also responds to the collision of street grids with the base on one grid and the tower on another.

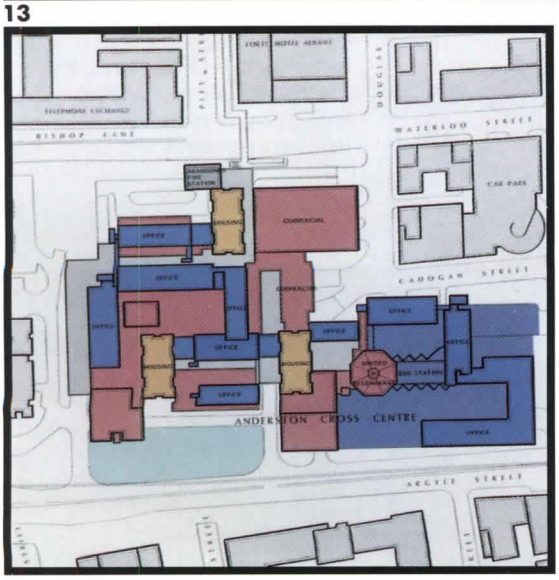


12



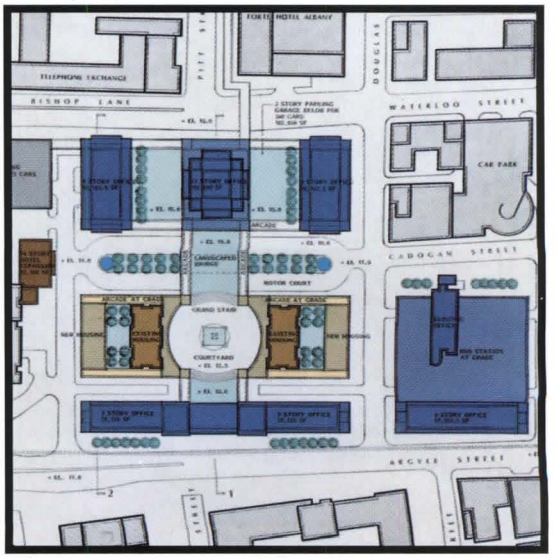
13

Tower City in Cleveland, by the Ehrenkrantz Group & Eckstut (13), responds to a different set of outside forces: the symmetries of the adjacent Terminal Tower complex, the termination of several major axes at the site, and its location at the edge of the downtown and the industrial valley. The structure forms a city wall at the edge of the valley. Office towers are symmetrically arranged along its length, with the two end towers turned 45 degrees to terminate the axes of two streets. A central museum defines a shallow plaza on axis with the Terminal Tower.

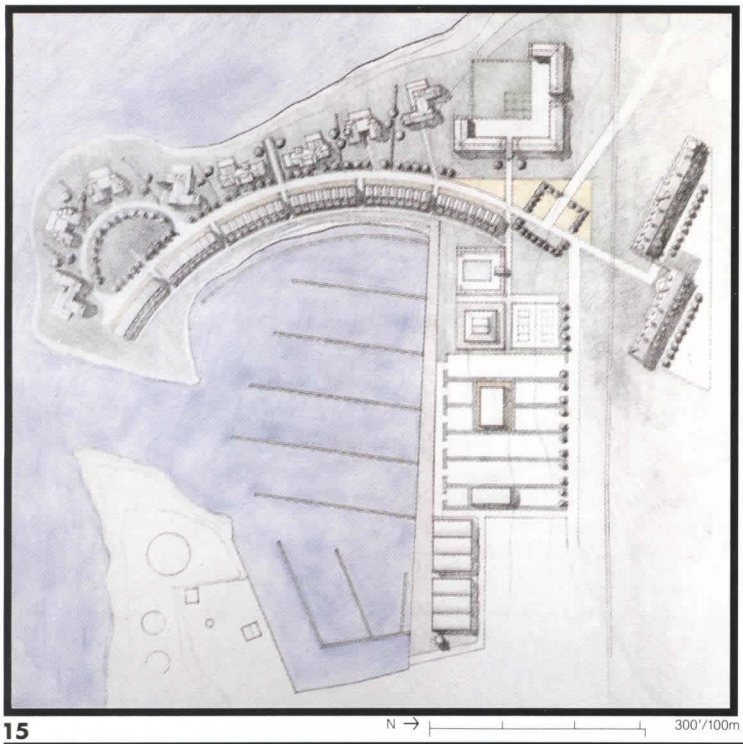


14a

In some cases, recent urban design projects have resulted in buildings that are less rather than more complicated. The World Trade Centre in Glasgow, Scotland (14), by Kohn Pedersen Fox Associates, occupies the site of an overly complicated megastructure built in the 1960s. The scheme calls for the demolition of most of the existing buildings and their replacement with a symmetrical arrangement of housing and office towers and an infill of lower buildings that enclose a central square. A new block of buildings will redefine the main street's edge.



14b



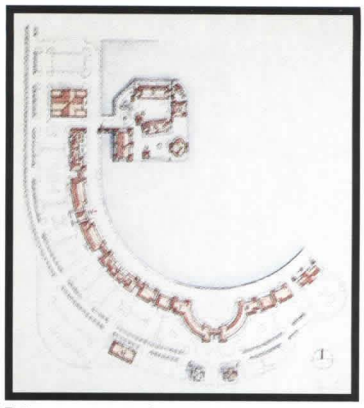
15

N → 300'/100m

Nature and the City

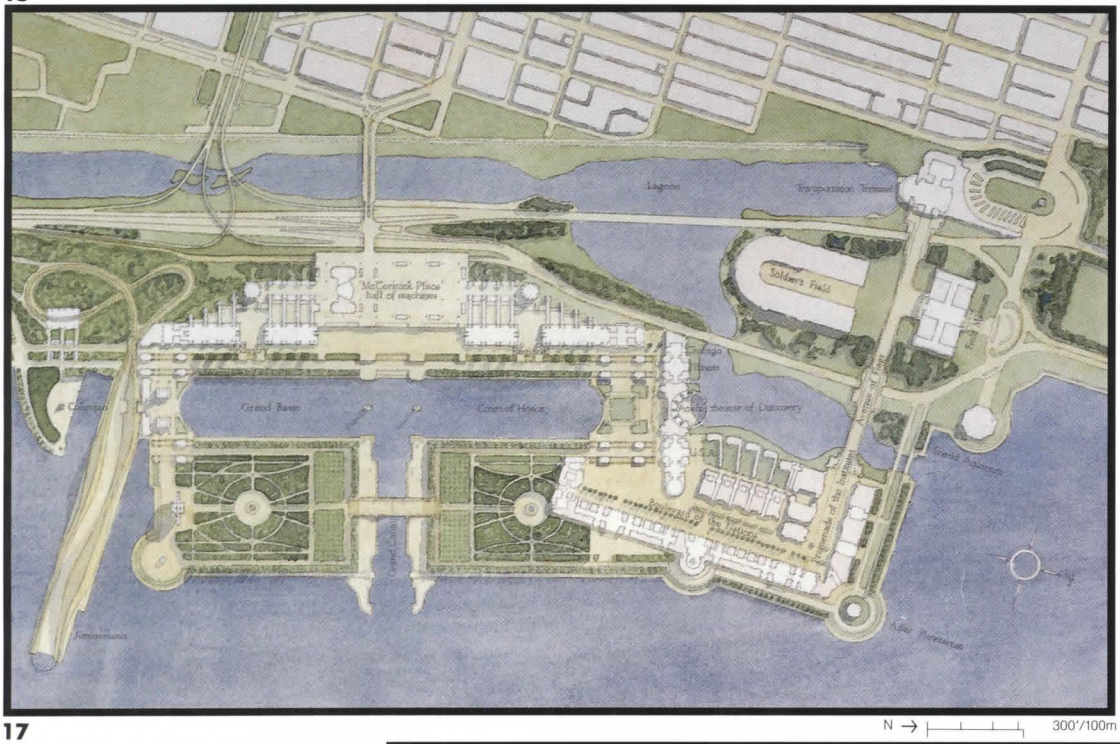
Although most urban design involves the relationship of one building or group of buildings to another, a number of recent projects have addressed the relationship of buildings and their landscape. East Passage in Rhode Island, by Schwartz/Silver Architects (15), uses an arc of row houses as the organizing element of the harbor site. Off that arc play the irregular forms of single-family houses on one side and the water's edge on the other.

Grand Harbor in Florida, by Robert A.M. Stern Architects (16), also uses a curve of buildings along a body of water as the ordering device. But here, the water's edge is smooth, turning the harbor itself into an urban space.



16

N ↑ 300'/100m

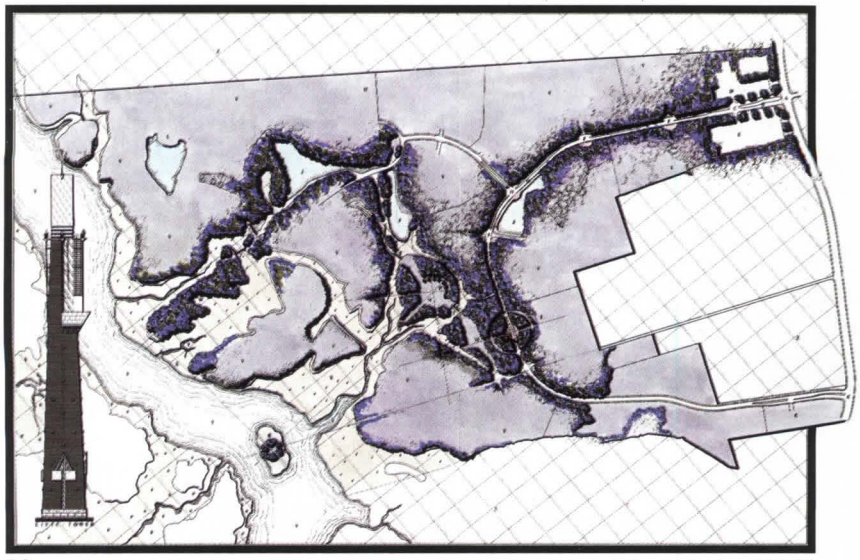


17

N → 300'/100m

In the proposal for the now defunct 1992 fair in Chicago, by Stuart Cohen & Anders Nereim (17), nature is urbanized to an even greater extent. A large lagoon serves in the place of paved court and is shaped into a Tee along the major axis and bowed at its ends in response to the cross axis. The flanking parks, too, are organized in an urban manner, with central circles and radiating and gridded paths.

Nature can even serve in lieu of buildings as the definer of space. Riverwalk Development in Chesapeake, Virginia (18), by Eric R. Kuhne & Associates, uses trees to form a series of entrance gates, an entry square, a series of plazas along the main roads, and a frame for vistas across the site.

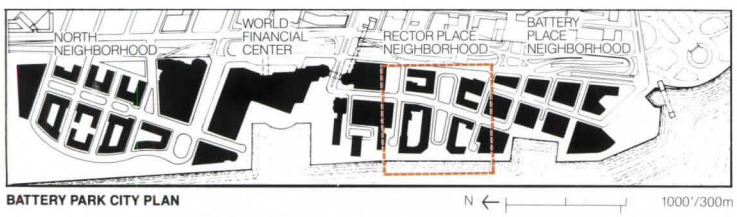


18

N ↑ 300'/100m

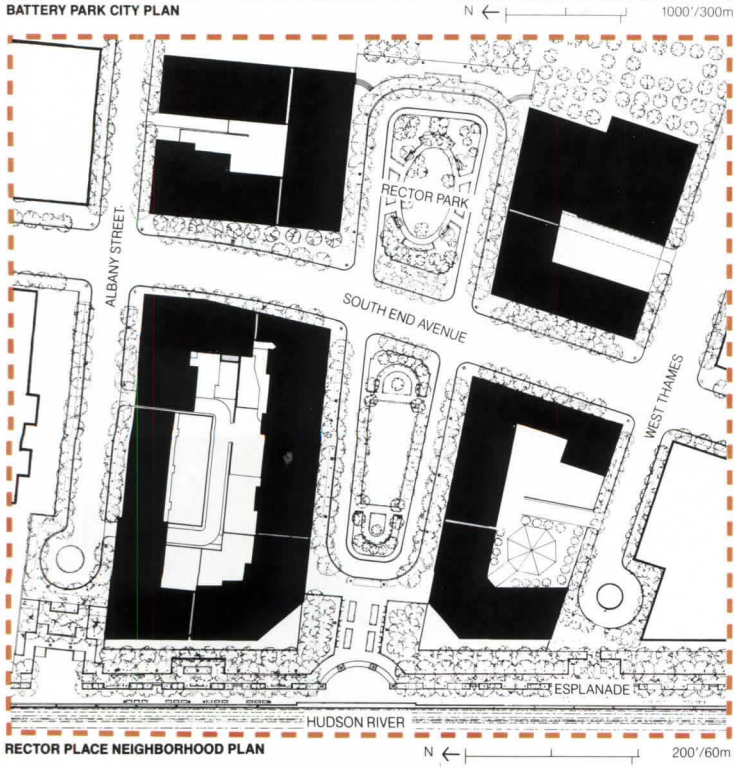
Building the New City

The completion of Rector Place in Battery Park City allows a first critical assessment not only of its master plan and design guidelines, but of the enforcement process that was key to their success.



BATTERY PARK CITY PLAN

N ← 1000'/300m



RECTOR PLACE NEIGHBORHOOD PLAN

N ← 200'/60m

BATTERY Park City in New York must be one of the most talked about urban designs of the decade. (See P/A, Jan. 1984, pp. 136–137; July 1985, pp. 79–86; June 1986, pp. 37–38; July 1986, pp. 98–105.) Its various elements—the World Financial Center, the Esplanade, and the residential neighborhood around Rector Place—have been widely praised in the press and held up as a model of urban development for other cities to emulate. Yet, little has been said critically about the process of Battery Park City's creation. How were its master plan and guidelines enforced? What worked and what didn't? What aspects of it are generally applicable and what are not?

Battery Park City's landfill site, which juts out into the Hudson River along lower Manhattan, is publicly owned and operated by the Battery Park City Authority, a public agency. In 1979, after many years of inaction, the Authority hired Cooper Eckstut Associates to prepare a master plan and design guidelines. Both were modeled after those aspects of New York's urban environment that the planners considered to be most successful. The master plan extended the street grid of lower Manhattan out to an esplanade along the river's edge which, along with other public open spaces, constitutes over 40 percent of the site. The models for the design guidelines were the early 20th-Century apartments of New York's Upper East and West sides—masonry-clad structures with punched windows, stone bases, midheight beltcourses, and stepped-back penthouses.

Almost everyone involved in developing Rector Place, the first residential neighborhood to be completed under the new regulations, has lauded the basic ideas of the master plan and design guidelines. "Without them," says John James of Bond Ryder James, echoing the words of his fellow architects, "there would have been chaos. They created the necessary order." Still some aspects of the guidelines and their implementation have been criticized by those who have used them—criticism that, however detailed its focus, is important if Battery Park City is to be used as a model of urban design nationwide.

The Master Plan

"Our boldest move in the master plan," says Stanton Eckstut, formerly with Cooper Eckstut Associates and now with The Ehrenkrantz Group & Eckstut, "was to break the larger blocks into smaller parcels so that a greater number of small developers could become involved. It's almost a law in urban design," he adds, "that the larger the pieces of property, the greater the departure in urban form."

The smaller parcels did, at first, work as intended, attracting a number of smaller development teams. But some could not handle projects of even moderate size and so a few large development companies ended up with several parcels. It took the careful control of the Authority to preserve the desired diversity—requiring that developers use different architects and materials on adjacent sites.

Some architects balked at what they saw as a diversity artificially imposed. John James's firm, for example, designed two equally sized buildings that form a kind of gate on either side of a major street. "We had originally designed them to be complementary," he says, "with their details and materials working together, but the Authority wanted them to look different." As Peter Samton of Gruzen Samton Steinglass notes: "Too much diversity itself can be monotonous."

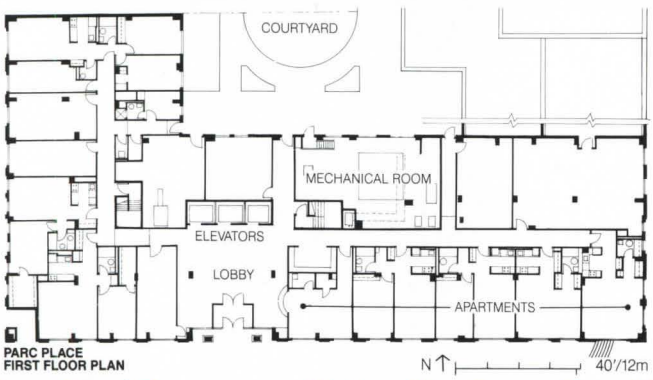
Perhaps the most serious criticism of the master plan addresses its lack of response to the winds coming off the Hudson River. "The wind velocity at the narrow end of Rector Place," notes Ulrich Franzen of Ulrich Franzen & Associates, "is very strong, especially in

(continued on page 92)

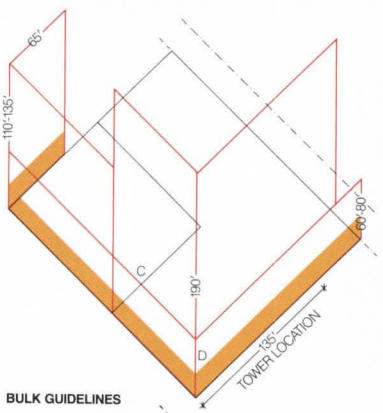




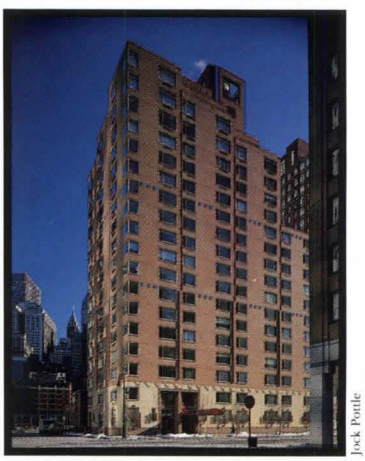
Steven Barker



PARC PLACE
FIRST FLOOR PLAN



BULK GUIDELINES



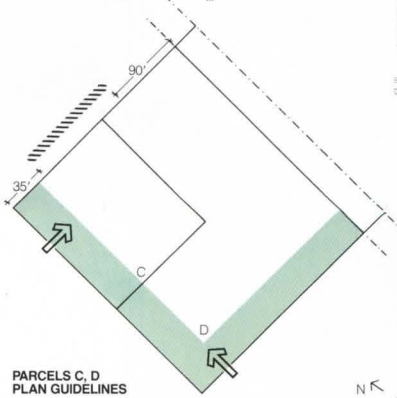
Jock Pottle

Parc Place, Parcel D
Architects: Gruzen Samton Steinglass

The Rector Place guidelines required that this L-shaped site have a corner entrance and a street wall 190 feet high (above). The architects put the tallest part of the building at the corner and stepped up the stone base there as well. To ease internal planning, they pulled the entrance back a few bays from the corner and accentuated it with a zone of lighter brick that steps up to the top of the slab. Rounded beltcourses define the various horizontal articulations required by the guidelines.

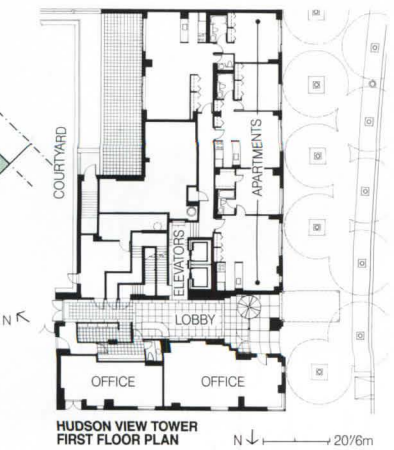
Hudson View Towers, Parcel C
Architects: Mitchell/Giurgola

This is the most Modern and least demonstrative of the buildings in Rector Place (right). It uses minimal squares of blue glazed brick to suggest the required horizontal lines, light-colored brick and window frames to emphasize the continuity of the wall surface, and syncopated window openings and vertical brick projections to accent the tower's height. By stepping the building in both plan and elevation and crowning it with a water tank tower, the architects added further to its apparent height.



PARCELS C, D
PLAN GUIDELINES

RESIDENTIAL/COMMERCIAL
RETAIL
STONE BASE
SERVICE
CURB CUT
LOBBY ACCESS
RETAIL ACCESS



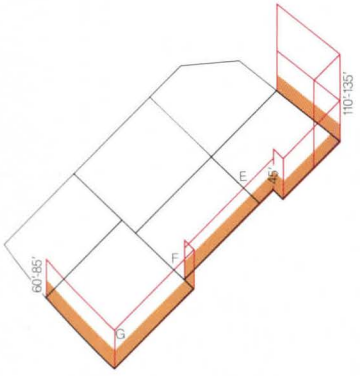
HUDSON VIEW TOWER
FIRST FLOOR PLAN



Peter Aaron/ESTO

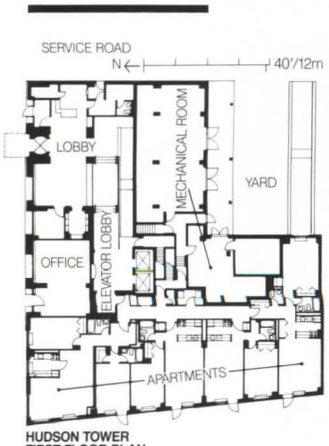


Wolfgang Hoyt/ESTO

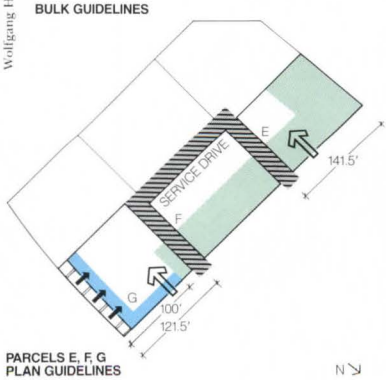


BULK GUIDELINES





HUDSON TOWER
FIRST FLOOR PLAN



PARCELS E, F, G
PLAN GUIDELINES
N

Hudson Tower, Parcels E, F
Architects: Davis, Brody & Associates

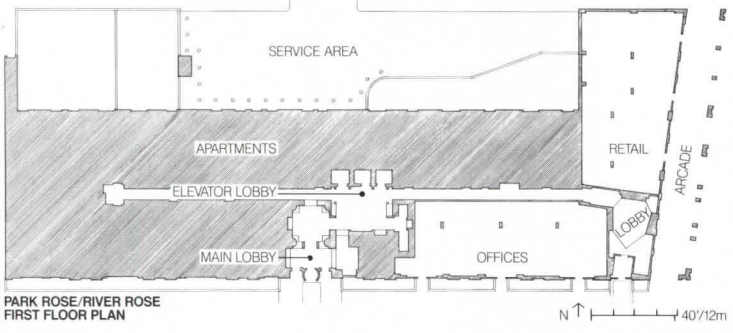
This building has two very different parts: a corner tower facing the Esplanade and row houses facing Albany Street (left). The tower takes advantage of the water views with its large windows and glassy corners, and its red window frames give it an appealing liveliness. The row houses, in contrast, are more subdued, with their entrances defined by a series of stoops. Outdoor balconies along their backs connect the apartments in the rowhouses to the tower and fire exits. The building extends over a service drive.

300 Albany Street, Parcel G
Architects: Conklin Rossant

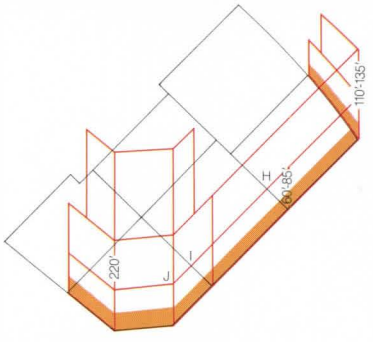
A mid-rise structure with a retail arcade along its eastern side, this building marks the major entry into the Rector Place neighborhood (above). The required depth of the arcade and size of its columns minimize the visual impact of the stores—good for the residents, perhaps, but not for the store owners. The two-story height of the stores also has proven difficult for their owners to fully utilize. On the building's upper floors, the architects have used vertical brick projections to break down the even grid of windows into smaller units.



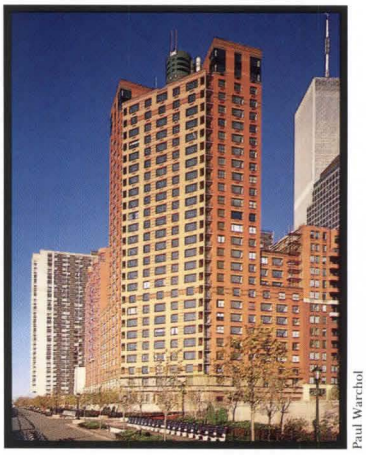
Stan Ries



PARK ROSE/RIVER ROSE
FIRST FLOOR PLAN



BULK GUIDELINES



Paul Warchol

Park Rose River Rose, Parcels H, I

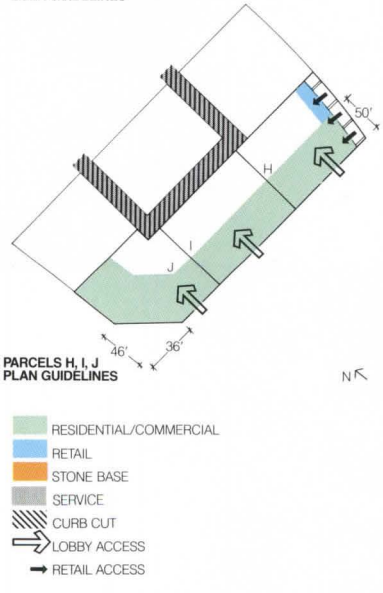
Architects: Charles Moore; Rothzeid Kaiserman Thomson & Bee, Associate Architects

The first to be completed, this building is also the most visually animated of all those in Rector Place (above). The elevation facing the park has angled indentations and slightly projecting balconies, with a corner tower marked by a large, round-arched ornament midway up its height. The master plan required that the building have two entrance lobbies, one for each parcel, although the lobby midway along the building's long wall is the main entrance.

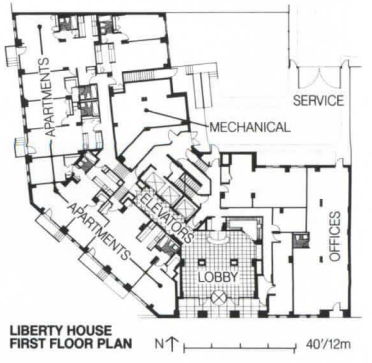
Liberty House, Parcel J

Architects: James Stewart Polshek & Partners

Occupying a key parcel where Rector Park meets the Esplanade, this building's form was largely determined by the design guidelines (right). The building's main interest lies in such details as the plane of lighter color brick at the chamfered corner, which is pulled away at its edges to emphasize its flatness, or the curved shiplike penthouse. As is the case with other buildings, the required entrance location at the side is not where the building's form suggests that it should be—at the chamfered corner.



PARCELS H, I, J
PLAN GUIDELINES



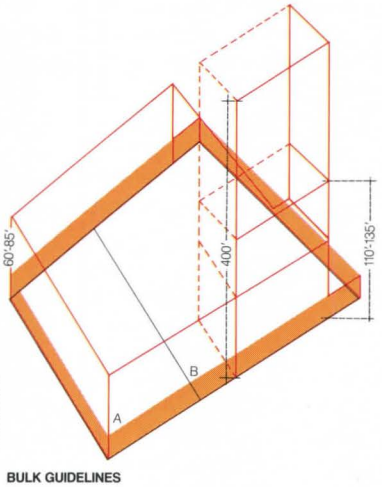
LIBERTY HOUSE
FIRST FLOOR PLAN



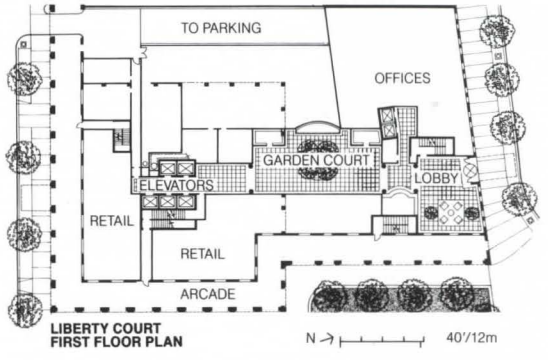
Peter Aaron/ESTO



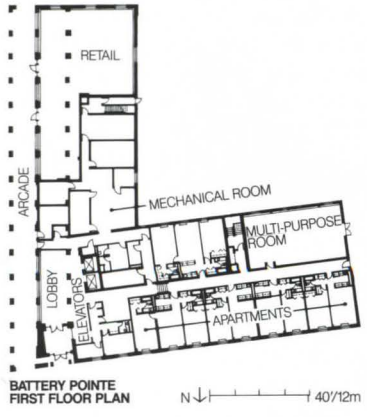
E. Lee White



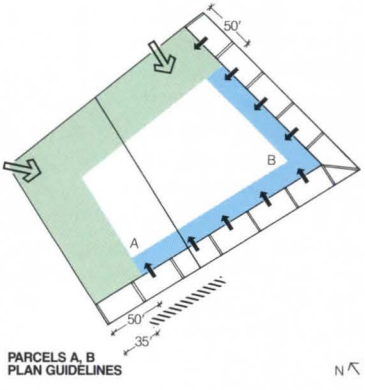
BULK GUIDELINES



LIBERTY COURT
FIRST FLOOR PLAN



BATTERY POINTE
FIRST FLOOR PLAN



PARCELS A, B
PLAN GUIDELINES

The Soundings, Battery Pointe, Parcels A, L
Architects: Bond Rider James
This pair of buildings form a kind of gate across South End Avenue. The structures (left) are similar in height and fenestration. But, at the request of the Battery Park City Authority, they differ in their brick color, trim detail, and ground-floor plan, with the one building having a retail arcade and the other, apartments along the side elevation. These two buildings show a weakness of the guidelines, requiring a superficial diversity when a unified treatment is in order.

Liberty Court, Parcel B
Architects: Ulrich Franzen & Associates
The tallest tower in the Rector Place neighborhood (above), this building also will dominate the Battery Place neighborhood beginning to rise to its south, standing on axis with the neighborhood's main street. The tower's stepped profile is an appropriate echo of the World Financial Center's towers to the north, and its height will be picked up by a series of towers to its south. While not required in the guidelines, the lobby has been extended through the block.

(continued from page 86)

winter. The placement of buildings and the landscape design could have responded to the problem of wind coming off of a large body of water, but they didn't." Wind tunnel tests of the master plan model apparently were not performed.

Design Guidelines

What is striking about the design guidelines for Rector Place is not just their tradition-bound mold, but their specificity. Although they do not address the backs or interiors of buildings, the guidelines detail such features as the general heights and shapes of buildings, the locations of lobby entrances and curb cuts, and the dimensions of sidewalks and arcades.

A few elements of the guidelines have drawn fire from architects. Several have commented that the lobby entrance locations created layout problems on the inside of buildings. "Entrances," says James Stewart Polshek of James Stewart Polshek & Partners, "were sometimes located in odd places, creating disjunctions in the relationships of lobbies and cores. There was nothing that we could do about it." Both Cooper and Eckstut, however, argue that they studied possible building layouts for every parcel and that all of the entrances were convenient to several core locations. Eckstut also says that "all but two of the entrances locations, those along the esplanade, were changed from what was shown in the guidelines."

Those aspects of the guidelines that did not have direct New York precedents seemed, in the opinion of most of the architects, to be the least successful. "The service alley," says William Conklin of Conklin Rossant, "is unattractive and has difficult turns. Most of the large apartment blocks in New York do not have alleys; one way or another, they are serviced from the street."

The two-story arcades along the west side of South End Avenue also proved unpopular. "The guidelines," says John James, "called for overscaled arcades, especially for the lower buildings." That becomes most apparent in the shops along the arcade, where few shop owners have taken advantage of the two-story heights and have chosen instead to hang lights at the first-floor ceiling level and live with the unsightly excess space. "In Italy," notes Conklin, "where such arcades are much more common, there would be apartments on those second levels."

In response to these criticisms, Eckstut says that the alley is one of his favorite parts of the development. "Cities are not all beautiful," he says. "Most of what we see walking down urban streets are back walls, party walls, and alleys." The arcade, he adds, "evolved from a desire to screen the retail activities on the residential streets." To all such criticism, he counters that "the push and pull between public and private interests—between outside forces and internal requirements—is healthy. With urban architecture, internal functions cannot totally determine its form; there will always be compromises." Still, it is worth noting that, after interviewing the architects who worked at Rector Place, Alexander Cooper & Partners have decided to eliminate the service alleys and most of the arcades in their design for Battery Park City's North End Avenue neighborhood.

Implementing the Guidelines

The need for greater flexibility in implementing the guidelines is another issue about which most of the architects concur. Amanda Burden of the Battery Park City Authority counters that with the claim that there was flexibility and that they did accept reasonable changes. "Several developers," she says, "asked that we allow the use of jumbo brick. We eventually accepted its use on the towers, where its larger scale would not be apparent." Alexander Cooper agrees: "The guidelines allowed much more design freedom than was actually taken." His former partner, Stanton Eckstut, goes even further, stating that such guidelines can aid designers. "The more rules, the more opportunities for design," he says.

What also caused problems for some of the architects was the Authority's review process, which required a sign-off at every stage of a building's design. "All good architects," notes Peter Samton, "keep designing even after the schematic and design development phases. The sign-off process made it very difficult to change any initial decisions." Eckstut sees nothing wrong with that: "It just demands that architects make more decisions and do more drawings up front." But, in fact, the process seemed to encourage the architects to do the opposite—to postpone decisions or, says Randy Leach of Mitchell/Giurgola Architects, "to not give away too much during the early design stages."

If the review process proved constraining, says Cooper, it was not because of the Authority, but because of the developers, who may not have wanted to risk the additional reviews that changes would have required. "Residential developers," he says, "tend to be more conservative, as a group, than their commercial counterparts. Some of the architects," adds Cooper, "even wanted stricter guidelines in some areas because they used the approval process as leverage to get their developer clients to do certain things." The leveraging of developers to get better quality exteriors had its cost, however. "By putting more money into the skins of the buildings," says one architect, "the developers cut corners on the interiors." The narrow hallways and small apartments in some buildings bear that out.

However flexible the guidelines and review process may or may not have been, they clearly did not allow for brilliant departures—buildings that broke all of the rules to wonderful effect. "The buildings at Rector Place," comments Polshek, "are okay, but just okay. I don't understand the notion that every building had to be a background building." Not all of the architects agree on this point. Peter Samton comments that "it is hard to make a strong design statement with housing, nor is it warranted." And John James sees Rector Place as a relief from "the circus of object buildings built recently in New York, most of which are not that good to begin with." Still, Polshek's comment is telling: Although the master plan calls for focal buildings to terminate axes or mark corners, the guidelines discourage any radical design departures. "Urban design," he says, "has to find a happier medium between the banal and the signature buildings."

Lessons

One sure sign of Battery Park City's success is the number of look-alike developments that have appeared around the country. But that also distresses Cooper and Eckstut. "Some developments extend a street grid even when there is no existing grid to extend," says Eckstut, "or call for blocky, masonry structures even when that is unlike anything else in the area."

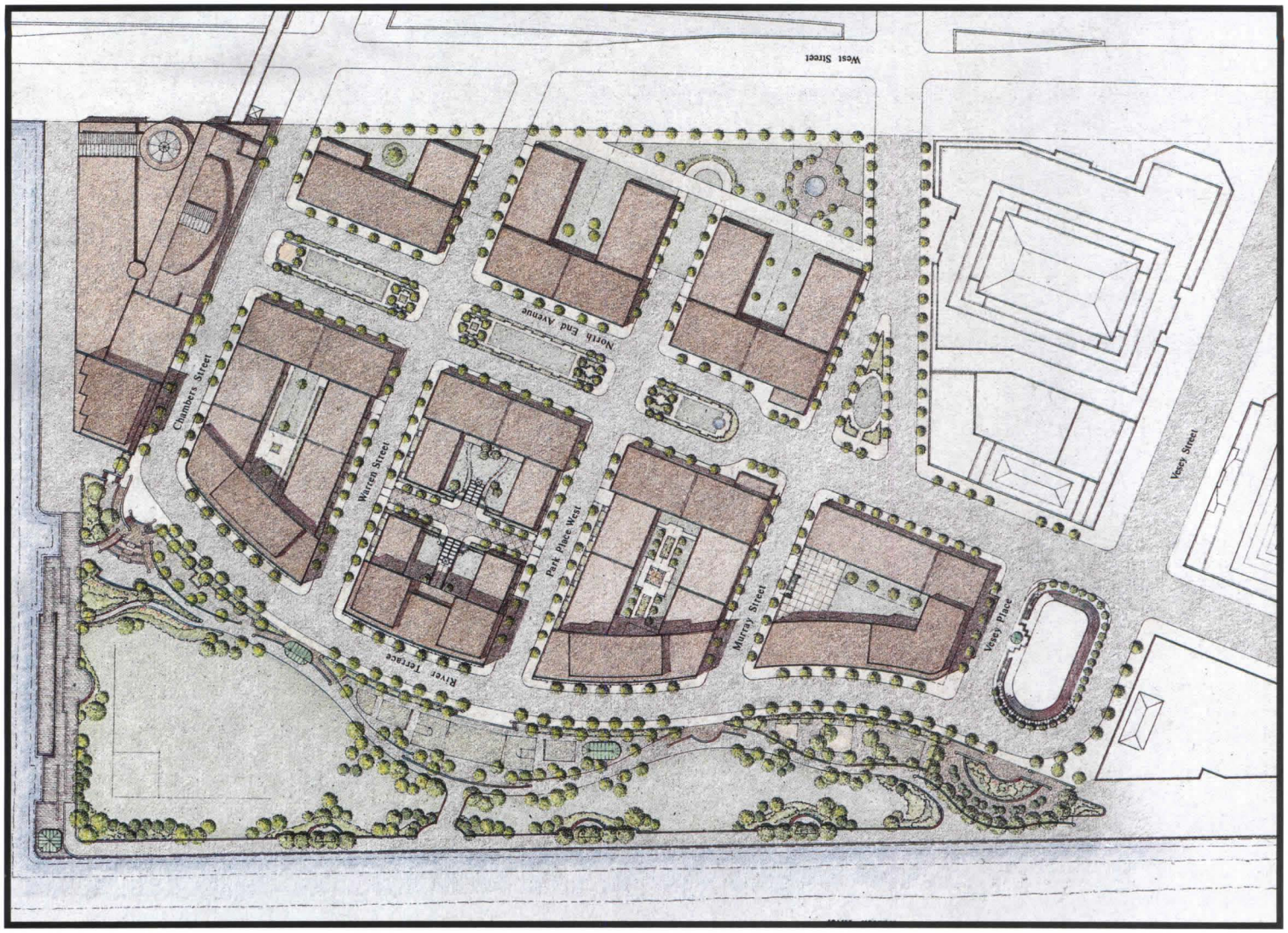
In short, the lessons of Battery Park City—those aspects of the development that are transferable elsewhere—have little to do with its specific forms. Any number of street layouts and building configurations can work, says Eckstut, provided that they emerge from successful local precedents.

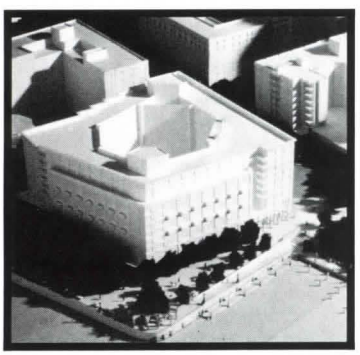
Even properly conceived master plan and design guidelines, though, are still not enough. Without the fair but firm enforcement of an overseeing agency such as the Battery Park City Authority, even the best plans will falter. "The Authority was key," says Cooper. "Without an organization like it, guidelines are of questionable value."

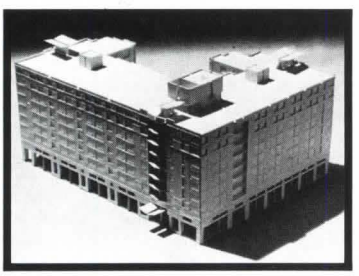
Yet, just any organization won't do. It has to be large enough to have staff qualified in design review, but, as Randy Leach points out, "not so large that it becomes bureaucratic and unresponsive." Nor will any location for such a development work. "The developers at Battery Park City were willing to go along with the guidelines," observes Peter Samton, "because of the demand for housing in lower Manhattan. In other cities, with less demand, it might not work."

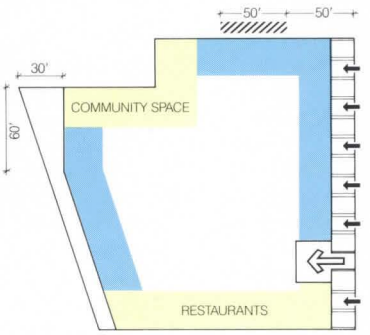
Most difficult of all, the guidelines and their implementation must be able to accommodate the "signature buildings," to use Polshek's term. "It's a myth," says Eckstut, "that guidelines necessarily create unity; they don't have to." Yet, drawing up guidelines that allow for such exceptions and setting up a design review process that accepts them is no easy task.

What is remarkable about Battery Park City and the process of its implementation is not that there are some flaws, but that there are so many things about it that succeed. The development already has become a landmark in the new urbanism, one built around public space and guided by public interest. And it already has signaled a new way of thinking about architecture, one that understands, as Stanton Eckstut puts it, "that the street and the square make the building." ***Thomas Fisher*** ■

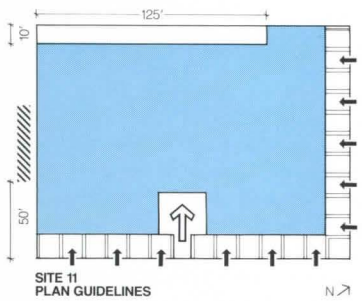




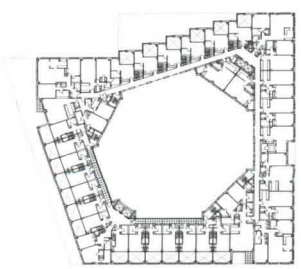




SITE 10
PLAN GUIDELINES
N



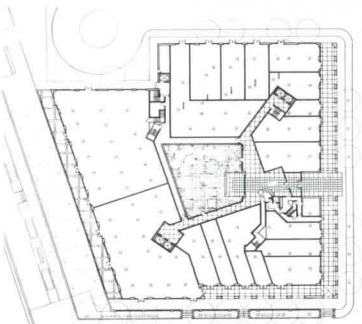
SITE 11
PLAN GUIDELINES
N



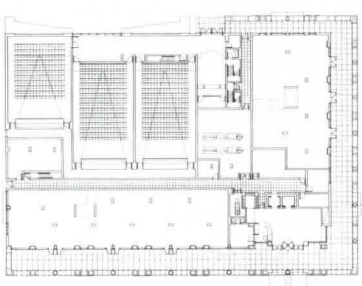
SITE 10 TYPICAL FLOOR PLAN



SITE 11 TYPICAL FLOOR PLAN



SITE 10 FIRST FLOOR PLAN
N
40'/12m



SITE 11 FIRST FLOOR PLAN
N
40'/12m

Battery Place neighborhood, Sites 10, 11
Architects: Gruzen Samton Steinglass (Site 10); James Stewart Polshek & Partners (Site 11)

These two buildings show the greater diversity of functions anticipated for the Battery Place neighborhood. The Gruzen building (far left) has restaurants facing the Esplanade and South Cove and shops facing the streets in the other direction. Polshek's building (near left) contains movie theaters in its first two floors, with the lobby and theater entrances carefully separated. The upper floors have double-loaded apartments.

North Neighborhood Plan
Planners: Alexander Cooper & Partners

The plan for the North neighborhood (above) has changed from that of the original Master Plan (see P/A, Jan. 1984, pp. 136–137). A larger park has been created along the water and a lower high school building now terminates the axis of North End Avenue. Changes made in response to some of the criticisms of the Rector Place plan include the elimination of service alleys and the virtual elimination of retail arcades. Tall buildings will face the waterside park; and mid-rise buildings, the divided North End Avenue.

Herman Miller Showroom
IDCNY/Center One
Long Island City, N.Y.

Soft Sell

Reconciling high-design office furniture with an industrial setting posed no problem for Gwathmey Siegel & Associates, who designed a showroom and renovated the building that houses it.



The Herman Miller showroom's corner location within IDCNY/Center One determined the placement of its entrance (above). The architects located the front door at the end of the corridor's long vista, leading up to it with three display windows (not seen in photo) and a series of stepped, black glass panels. The entrance door and the window to the right of it are inscribed with a 1'3" grid, an increment of the showroom's ten-foot grid.

LAST October, during Designer's Saturday, Herman Miller unveiled its newest showroom, a 21,500-square-foot space on the second floor of Center One at the much-publicized IDCNY in Long Island City. The showroom bears the signature of Gwathmey Siegel & Associates, who also renovated (with Stephen Lepp Associates) the buildings that make up the IDC, including the former chewing gum factory that is now Center One (p. 100). Their disciplined Modernist aesthetic, combined with their respect for the inherent power of the existing architecture, produced a showroom that defers to the furniture without disappearing into the background.

The architects were luckier than most showroom designers in that they didn't have to incorporate sales offices into their design. Herman Miller decided that the space should be a "sandbox" for architects and designers, a place to learn about Miller products up close, hands-on, and without the hard sell. Apart from programmatic requirements of conference and audio-visual rooms, an executive office, fabric sample workroom, and pantry/kitchen, the client wanted the space to be flexible, with "civility" (a favorite Herman Miller word) top priority. They asked for informal meeting areas, a "living room" reception area, lockers where visitors could stow coats and packages, telephone areas, and even restrooms—a rarity in showrooms, which generally rely on building facilities.

Gwathmey Siegel accommodated these requests in a way that combined elegance and expedience. The "living room," conference room, and private office are located on a mezzanine (created by the railroad tracks that once ran into the building) that overlooks Center One's five-story atrium. The audio-visual room is housed in a block, clad in crystallized glass, that also camouflages a storage area and an existing fire stair. The client's insistence on accessibility produced a wheelchair ramp that offers an overview of the space. These, and a cylindrical black reception kiosk, are the only permanent "interventions" in the space. The ten-foot grid of the scheme is established by an ingenious ceiling system, developed with lighting designer Jerry Kugler, that incorporates fluorescent uplighting, incandescent spotlighting, and tracks for the various display, graphic, and space-dividing panels that modulate the showroom interior. The grid is broken down into smaller increments on wall and window surfaces, reinforcing the geometry of the scheme and providing a sense of scale and subtle decoration.

The palette of the showroom is characteristic of the architects: shades of gray, some of which are also standard colors in the Herman Miller line. Monochromatic doesn't mean monotonous, however: warm tones and textural variations keep it interesting, and allow the colors of upholstery and panel fabric to stand out.

"Tolerance within a rigorous construct" is Charles Gwathmey's philosophy of showroom design; this isn't the place to experiment with the latest design trend. His outlook may be conservative, but it isn't cautious. The architects could have obliterated all traces of the industrial shell with gypsum board and suspended ceilings, but they chose instead to layer new upon old with a pragmatic sensitivity that allows both to shine.

Pilar Viladas ■



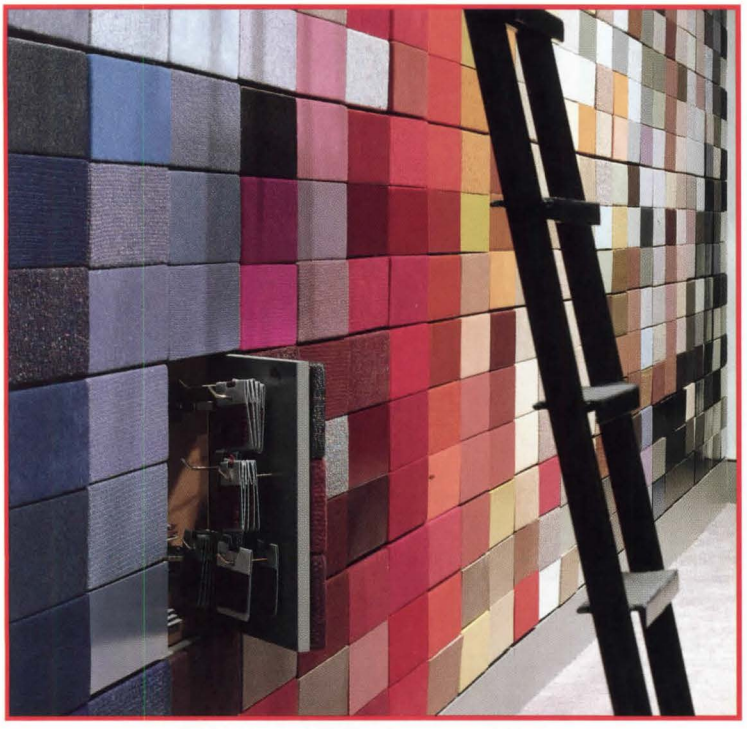
A cylindrical reception kiosk (left) of black-stained ash and plastic laminate serves as a magnet for entering visitors and an orienting device for those walking through the space.

Looking north from the showroom space (below), the stair to the mezzanine, and the corners of the conference room and private office are visible at right. Suspended panels, of fabric and plastic laminate, provide visual privacy for a small conference area; existing concrete columns (20 feet on center) define a product display area.

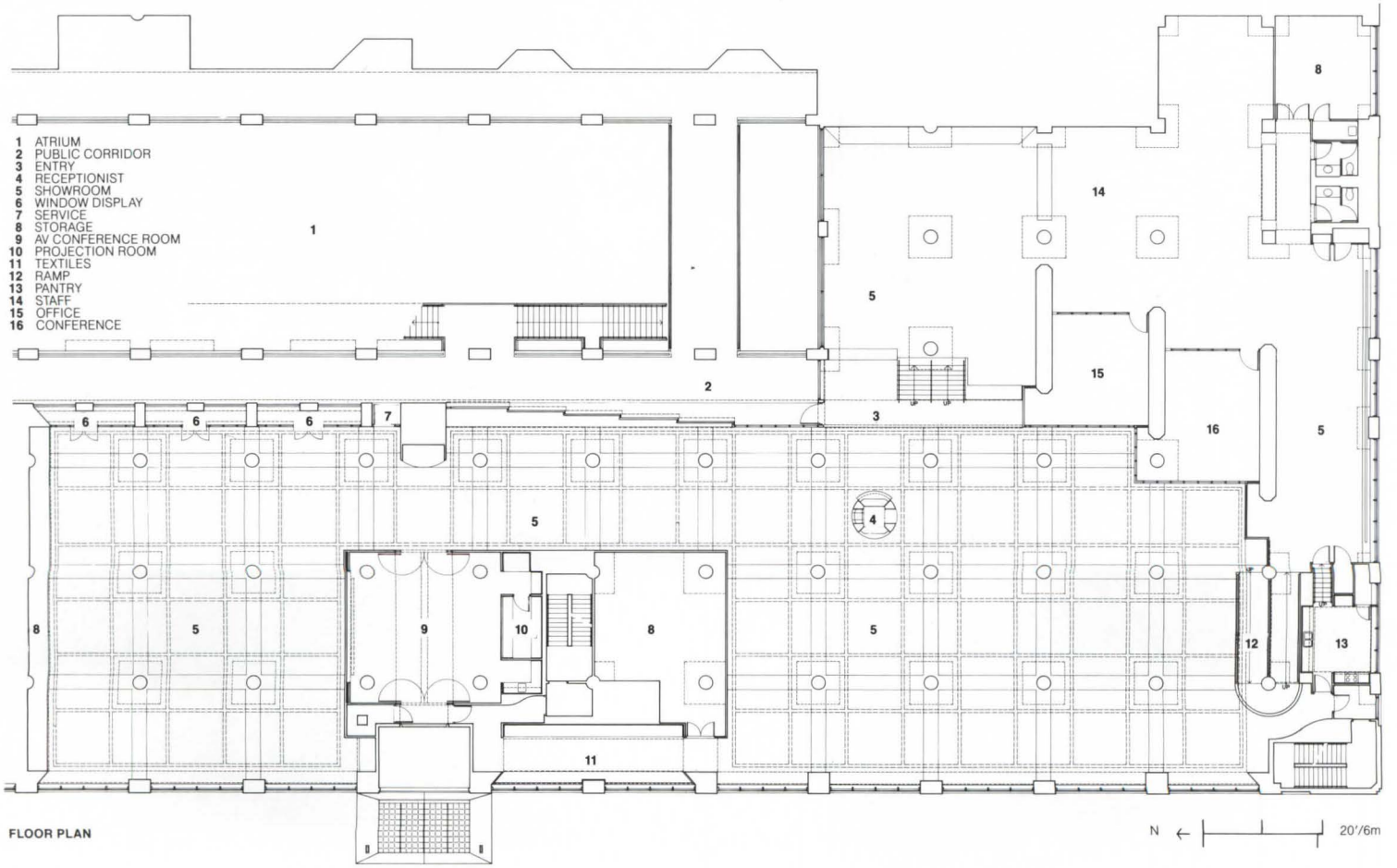
A fabric display wall (below left) forms part of the west wall of the audio/visual and storage "block" (plan, bottom). Each fabric-covered panel conceals a compartment containing sample swatches; higher rows are reached by a rolling library ladder. Opposite this is a lighting lab that allows visitors to test fabric colors under different lighting conditions.

On the mezzanine level, five feet above the main showroom space, are the "living room," an informal gathering place, staff offices, a conference room, and a private office (below right). Defined by an existing concrete shear wall, the office overlooks the main space through a gridded window wall; the sliver of glass block serves as a "gasket" (the architects' word) that mediates between the two walls.

One of William Stumpf's Ergon chairs does a balancing act (facing page, bottom) in the showroom, in which the architects managed to preserve the rugged, industrial quality of the space while at the same time creating a suitably elegant setting for the client's broad range of office furnishings.







FLOOR PLAN

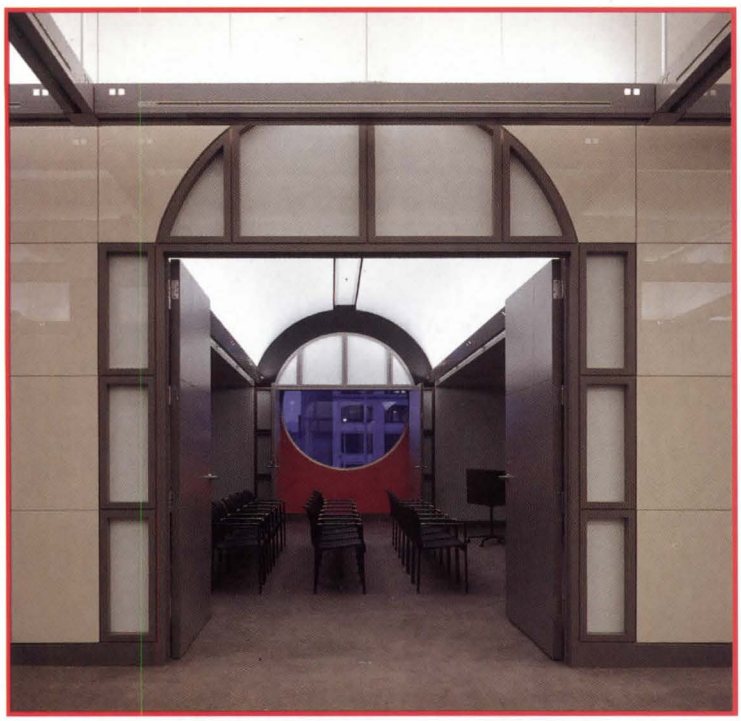


The showroom's lighting system (detail, left) is a network of six-inch-square-section channels on a ten-foot grid. Each channel contains fluorescent uplighting to illuminate the ceiling, while incandescent track lights fit into the sides of the channel; the two types of lighting are individually adjustable. The small squares cut into each channel indicate when the fluorescent lights are on, combining function and decoration. On the underside of the grid are tracks, from which are suspended the panels that modulate the space. The entire grid is suspended 2'6" below the ceiling, allowing the existing mechanical systems simply to be painted out. It also suggests a slightly lower, yet transparent "second" ceiling plane.

The audio-visual room (below), barrel-vaulted on its cross axis, aligns with the oculus that Gwathmey Siegel *had designed* for their renovation of the Center One.

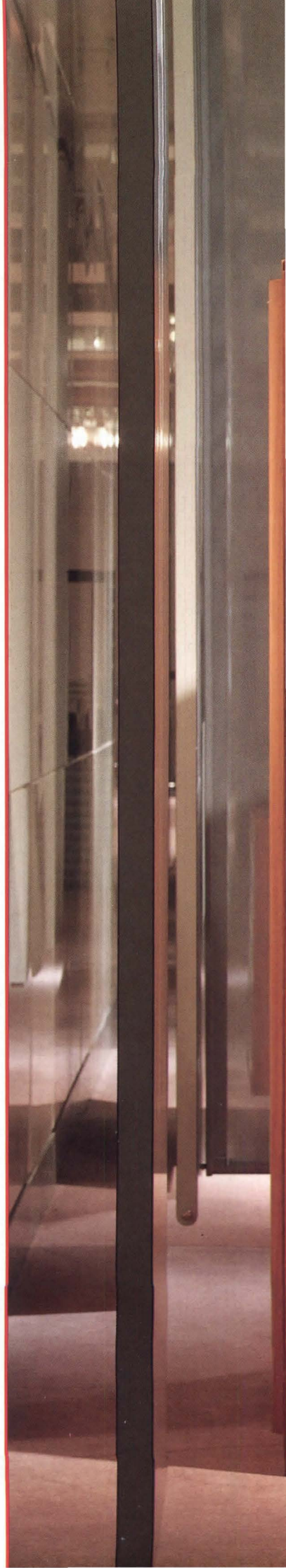
This volume, treated as an object within the showroom, is clad in light, warm gray crystallized glass, and grouted in a slightly darker gray, to emphasize its 2'6" grid. This grid is repeated on the inside wall of the glass display windows (bottom) along the corridor; the glass wall is sandblasted in a 1'3" grid, reversed so that only a glimpse of the showroom is visible behind the displays.

The panels that punctuate the showroom create an abstract landscape (right), dotted with classic Herman Miller designs, such as the bench by George Nelson.





Project: *Herman Miller showroom, Long Island City, New York.*
Architect: *Gwathmey Siegel & Associates, New York (Paul Aferiat, associate in charge; Ming Leung, job captain; Gerald Gendreau, Philippe Dordai, Samuel M. Anderson, Stephan Yablon, Shalini Taneja, project team).*
Client: *Herman Miller, Inc.*
Site: *27,000 gross sq ft at the southwest corner of the second floor of IDCNY/Center One, facing a five-story interior atrium.*
Program: *product display; conference and audio-visual rooms; textile/sample workroom; mock-up area; "living room"; staff areas; pantry/kitchen; storage, totaling 21,455 net sq ft.*
Structural system: *existing reinforced concrete structure.*
Major materials: *drywall; acoustical ceiling; crystallized glass; fiberglass-reinforced plastic panels; glass block; carpet tiles; plastic laminate; rubber flooring (see Building Materials, p. 207).*
Mechanical system: *water-cooled tandem heat pumps.*
Consultants: *Severud Szegedy, structural; Ambrosino, DePinto & Schneider, mechanical; Jerry Kugler Associates, lighting; Carlos Ramirez, Inc., environmental graphic design; Tomoko Miho, environmental art.*
General contractor: *NICO Construction (Yvonne Saavedra-Limb, project manager).*
Costs: *$75 per sq ft.*
Photos: *Richard Bryant.*







The entrance to Center One (below left) is located on its west façade, adjacent to Center Two (below right, at left of photo). Both buildings face what was intended by the IDCNY's master planners, I.M. Pei & Partners, to be an open plaza, but which for now is used as a parking lot. (Center Three will be located immediately to the west of Center Two.)

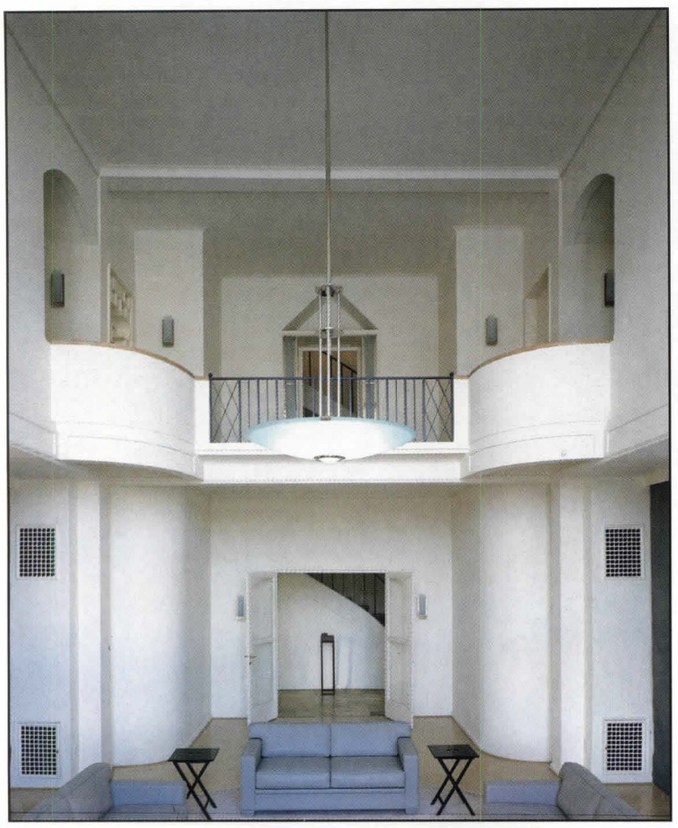
Centers One and Two are joined by a 60-foot-long, orange-red, three-level pedestrian bridge. This "asymmetrical parallelogram," as Charles Gwathmey describes it, functions almost as "a third atrium" that creates a sense of anticipation in the procession from one building to the other.

The south end of Center One's atrium (facing page) illustrates the architects' treatment of what was a tall (70 feet high), narrow (40 feet wide), and seemingly endless (380 feet long) open courtyard. They roofed it with a barrel-vaulted skylight, bisected the space with an elevator tower and pedestrian bridges, and sent stairs climbing up the west face of each half of the atrium, meeting at the fifth floor bridge.





Villa Turque





(continued from page 102)

scheme of ultramarines, ochres, and siennas was devised by the architect, but the furniture was chosen by the Schwob family itself.

The house passed through several hands, underwent a fair amount of internal alteration and external deterioration, and in 1986 was bought by the EBEL watch company (whose slogan is "The Architects of Time"), to be used as its public relations headquarters. After considering several designers, the company chose Andrée Putman of Ecart, Paris, who has designed a number of EBEL boutiques.

Putman and her associate, Thierry Conquet, worked with La Chaux-de-Fonds architects R. and P. Studer and consulting conservationists to determine the original forms, materials, and colors of the building where they were in doubt. On the exterior, concrete was waterproofed, the ochre glazed bricks were cleaned and, where necessary, replaced by carefully matched new ones, windows were repaired or rebuilt, an unusual glassblock panel was recreated . . . in short, a complete restoration was executed.

Inside, the spaces and architectural details were reestablished as they originally had been, but the mood has been lightened and brightened. Rather than Le Corbusier's Neo-Classical color scheme, a monochrome one of beiges and grays has been used, only the blue-green tone being picked up from the original. The furniture, by Eileen Gray, Mariano Fortuny, Putman herself, and others, is in the spirit of Le Corbusier . . . but of a slightly later period, when he had left his hometown finally for Paris. The interior design accords with the wishes of EBEL for a workable public relations center, not a museum. The paint scheme could conceivably have been followed, but a consistency with the image of EBEL's boutiques was desired.

The second-story balcony over the living room (above left) gives access to the bedrooms. Here, a number of original details have been reinstated. The pediment above and recessed slots on either side of the central door to the balcony have been reopened. Remnants of an original recessed bookshelf, to the left of the door in the photograph, were discovered, and the bookshelf—actually a three-dimensional plan of the villa—was re-created. The curved balcony corners are original, fulfilling Le Corbusier's aim to avoid dead corners. Furniture in the living room (above) is by Eileen Gray, Jean-Michel Frank and Adolphe Chanaux, and Ecart, the carpet is custom-woven, drapery is of mosquito netting, and the overall tone accords with Putman's boutique designs for EBEL. The sense of precision, most notably in the new Putman-designed hanging lamp, is intended to reflect the mechanistic sensibility and high standards of the Swiss watchmaker. The library niche off the living room (opposite page) still exists just

Project: *Villa Turque (Villa Schwob) renovation, La Chaux-de-Fonds, Switzerland.*
Original architect: *Charles-Edouard Jeanneret (Le Corbusier).*
Renovation designers: *Design: Ecart, Paris; Andrée Putman & Thierry Conquet; Laurent Buttazzonni, assistant.*
Renovation architects: *R. & P. Studer, architects, Neuchatel and La Chaux-de-Fonds; Pierre Studer, partner in charge; Alice Blank, assistant.*
Client: *Public Relations Center, EBEL Watch Company.*
Site: *a corner site just beyond the center of La-Chaux-de-Fonds.*
Program: *reception rooms and three suites for lodging guests; public relations offices; audiovisual room. Total, including basement: 4000 sq ft.*
Structural system: *reinforced concrete columns and slabs.*
Mechanical system: *central hot air.*
Major materials: *plaster partitions, matte lacquer paint finish; wool carpeting and stained oak parquet floors; gypsum board ceilings.*

P/A Inquiry
Back Offices

The back office has come to the fore as a workplace for both clerical and management staff. Physically improved, it also is now physically removed from the head office.



Wolfgang Hoyt/ESTO

THE 1980s have witnessed a revolutionary change in the organization of the office: The back, operational side of the office has been uncoupled from the front, executive side. New technology, which has transformed paper flow into electronic flow, has made the uncoupling possible. Other factors such as company mergers, which have swelled the back office work force, have contributed to the trend. The result has been a crisis in facilities management. The need for more space for growing numbers of people, combined with the spatial needs of the new technology, has challenged managers and designers to create a new environment.

As the location and size of the back office has changed, so has the range of back office work broadened. The computer and word processor are no longer just the full-time tools of clerical workers. Professional analysts and technicians in many fields now use them for increasingly sophisticated tasks. With that has come an increase in the amount and type of work that goes on behind the scenes.

On the whole, back office workers expect a lot from their environment. Work-related stress in the form of eyestrain, back trouble, fatigue, and other more subtle complaints has been well publicized, resulting in heightened public concern. Because trained workers are expensive to replace and labor costs are increasing in proportion to operating costs, employers also are interested in increasing their workers' job satisfaction and productivity, both directly affected by the quality of the office environment. This concern with office quality, however, is coming at a time when there is also economic pressure on employers to reduce the size of work stations and to place them in ever larger buildings.

City versus Suburb

The planning for the decentralization of back office space was begun in the 1970s by companies with large clerical components, such as financial services firms. At the time, rents for center city office space were high and rising, and vacancy rates were low. Hence the suburbs of large cities looked attractive as alternative locations; they offered larger and cheaper sites, less restrictive codes for office buildings, and the prospect of an untapped, better-educated workforce, mostly housewives. The assumption was that these workers would live relatively near the workplace and drive their own cars, compensating for the lack of public transportation.

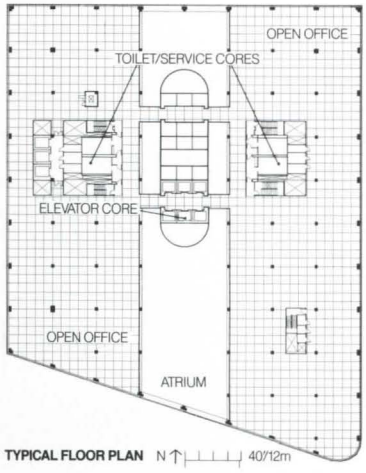
As it turned out, suburban office locations became so popular for speculative as well as company-built office buildings that by the 1980s, traffic had reached gridlock, and competing companies had absorbed the smaller-than-anticipated labor pool. Not only did the office workers live farther and farther away, but it took them much longer to commute as their traffic, combined with that generated by the retail strip developments that grew up around suburban office centers, now crept along by stops and starts. Afflicted communities in areas of accelerated growth, such as California's Contra Costa county, have adopted moratoriums on office buildings while they revise their master plans and study transportation needs.

If one motive of the back office's exodus to greener pastures was to escape from costly real estate, another, seldom expressed, was to elude unions and the minorities locked into degenerating city public school systems. Yet the failure of public education systems to keep pace with the increasing demand for skilled workers seems not to be a matter of location. Even in the suburbs, management is faced with education and training expenses. Nor have suburban workers



Photos: Mark Darley





proven to be more dependable, unionized or not.

Meanwhile, cities have attempted to curb the back office exodus, offering tax abatements and other inducements to pursuade companies to stay in town. These tactics worked with the Irving Trust Co. and the Shearson American Express Co., both of which built their back office facilities (see this page and p. 110) in Manhattan.

Sizing the Back Office

The new generation of office equipment has dictated larger floor areas as a means to more efficient, cost-effective operation. Floor dimensions for back office space are up to 40,000 square feet and more. With such large floors and high occupancy levels, employees may come to inhabit an unnatural, monochromatic world animated mostly by the luminous, winking eyes of computer screens. In this scenario, workers seem to be incarcerated rather than employed. For this and other reasons, lighting has become a paramount issue in office design.

Getting daylight into large floors is easier on suburban sites that allow larger building peripheries, with wings or notches in their forms. Daylighted interior courts or atriums, a feature of many 19th-Century office buildings, have become almost commonplace again, especially in urban offices. They let natural light into the building's center and are considered social amenities, serving as places for workers to relax and congregate.

Other strategies for daylighting offices include the use of light shelves and light-colored ceilings. This approach has the added benefit of removing direct light, and thereby glare, from computer screens. Reflected artificial lighting performs the same functions,

(continued on page 110)

Irving Trust Operations Center
New York
Architects: Skidmore, Owings & Merrill

By locating its Operations Center at 101 Barclay Street in Tribeca, Irving Trust set a new trend in Lower Manhattan. In the late 1970s, Irving Trust considered and rejected moving their back office operations out of Manhattan. Though civic pride and convenience influenced the decision to keep the facility in New York, a tax abatement from the city and a site that permitted floor areas of 45,000 square feet were crucial factors. The company also anticipated having compatible neighbors to make the area more secure and lively.

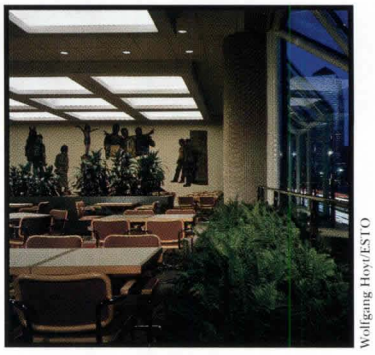
About 5200 people work in the building designed by the New York office of Skidmore, Owings & Merrill. The street that divided the two-acre trapezoidal site was replaced with a 60-foot-wide atrium. The building rises to 23 stories on one side and 16 on the other; the latter is topped with a landscaped cafeteria and lounge overlooking the atrium. By removing one third of the building's perimeter from direct sunlight, the atrium conserves energy and lets in daylight. Thus every employee is within 45 feet of natural light and a view.

The steel frame structure is clad with 4′ x 10′ glass panels. At eye level, a band of clear glass admits daylight; above it, a band of partially reflective glass excludes glare.

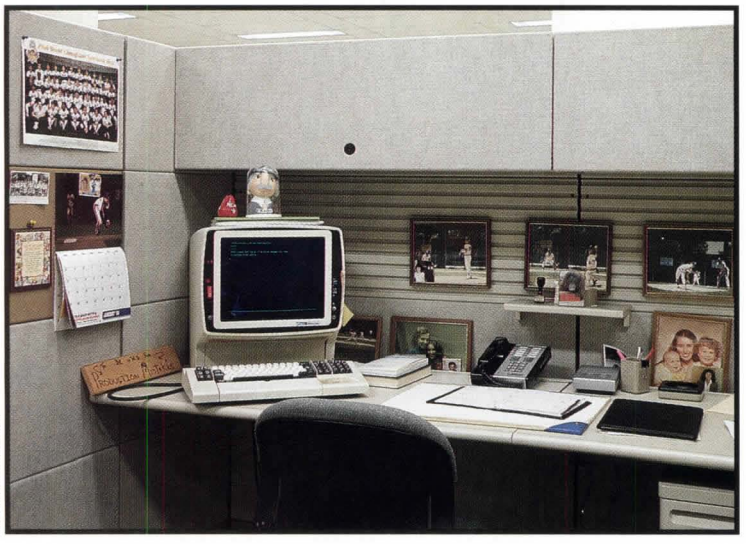
Blue work station partitions and white walls create a clean, crisp appearance for the floor space. The elevator cores are red, and the basement interiors have bright yellow walls.

The typical work stations are 8′ x 8′ with 52-inch-high partitions. Managers' offices are located near their workers' stations and have 72-inch-high partitions. The typical ceiling height is 8′6″. Ancillary spaces for conferences are convenient to work groups. The general intention of the designers and the client was to provide for as much interaction and flexibility as possible.

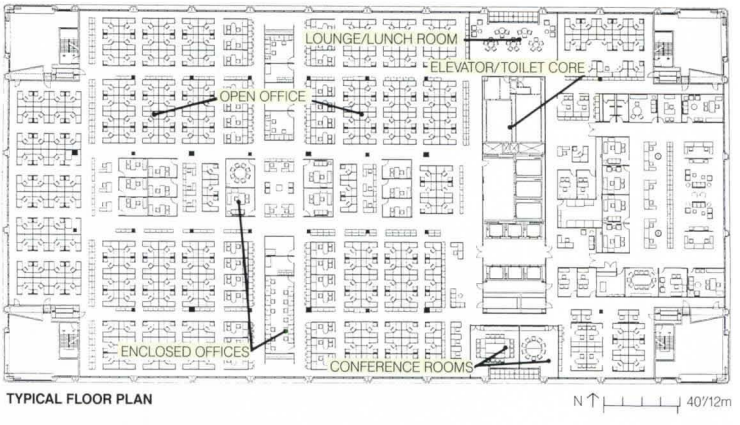




Wolfgang Hoyt/ESTO



Photos: Mark Darley



TYPICAL FLOOR PLAN

Shearson American Express Information Systems Facility
New York
Architects: Skidmore, Owings & Merrill

The Shearson American Express Information Systems Facility, at 399 Greenwich Street, is also in New York's Tribeca area, and also by the New York office of Skidmore, Owings & Merrill. The 800,000-square-foot building houses about 2000 workers; it is the first of a two-phase project for a 172,000-square-foot site. Although the designers addressed the same issues in both projects, solutions varied because of differences in the corporations' view of technology and in the attitudes of facilities management toward the workspace.

At Shearson, as at Irving Trust, nearly all desks have computer terminals. But at Shearson, 50 percent of available floor space has raised access flooring, whereas Irving has a composite metal deck through which power, telephone, and communications wires are fed. At Shearson, the raised access flooring provides more flexibility for relocation of work stations.

Work station partition heights range from 42 inches as a typical height to 72 inches for managers. The ceiling height is 10 feet, which gives a more spacious feeling to the office floors. Work stations were spaced so that two, four, or eight people could work together. Aisle widths varied to allow secondary aisles to be part of the workspace. While the sheer size of the floors imparts a regimented character, they are reasonably flexible in use.

Both companies cooperated fully in the programming process. The architects were able to interview employees about their needs and preferences. And full-scale mockups of the work stations were tested by potential users.

The addition of a physical fitness center adjacent to the medical station in the Shearson building and an in-house physical fitness counselor testifies to the growing list of amenities that companies now find appropriate for back office facilities.

(continued from page 109)

while task lighting in the stations provides higher lighting levels where needed. However, studies have shown that daylight, by itself, does not compensate, psychologically, for window views, which allow us to stay informed about changes in the weather, the time of day, and the seasons.

Satisfying Work Space

As the work station has become more connected to the building's systems and its shell—traditionally separate design elements—the whole building and its occupants are more interconnected than ever before. Because human factors affect costs and human productivity affects profits, the design of office buildings also calls for more interaction between design and social disciplines. Moreover, both office workers and enlightened management now participate, in varying degrees, in the design process.

Michael Brill of BOSTI, a recognized expert on office design and productivity, has published widely used research findings on workers' preferences (see P/A, Jan. 1985, p. 154). Brill found that, given their druthers, most office workers prefer enclosed work spaces. Only clerical workers, who traditionally have had minimal enclosure, do not register a strong preference. In fact, as Brill and others have found, acoustical and visual privacy are major concerns as more managers are being moved to open-plan floors while continuing to need privacy for conferences. Brill has found 65 inches to be an optimal height for open office partitions.

The beehive appearance of ranks of work station cubicles can be stultifying. Yet, as Carolina Wu, head of the Interior Design Department of Skidmore, Owings & Merrill in New York, observed, this









SECOND FLOOR PLAN

Photos: Paul Peck

feeling depends somewhat on the ceiling height. Floors with ten-foot heights look less like mazes than floors with the more typical ceiling height of 8′6″. If raised floors are used to accommodate power needs, floor-to-floor heights must be even higher.

Adequate storage space for both work-related items and personal effects is definitely related to job satisfaction. Some years back, futuristic views of computer technology inspired predictions for a paper-free office. Instead, our dependency on paper has increased, keeping the computer printers busy and making storage a growing problem. The cumulative space needs for storage, desks, machines, chairs, and human circulation add up to a demand for more rather than less space in the work station. Yet Brill found that because space is the most costly part of the work station, it is being reduced. Only the miniaturization of equipment offers some hope of relieving this conflict.

Not so long ago features like atriums were considered frills where back office space was concerned. Today, distinctive entrances and lobbies—linked to well-appointed employee eateries and health facilities—are included in many building programs. Although back office space is still neither posh nor designed for public display, as executive space usually is, the investment of time, talent, and money is producing some exemplary working environments. That this development is part of a national agenda to make the U.S. more productive and competitive in the world makes the rationale behind it seem more instrumental than humane. The hope is that, on the humane side, design will make a difference. ***Sally Woodbridge*** ■

De Anza 6—Apple Computers Cupertino, Calif.
Architects: Robinson, Mills & Williams

De Anza 6, three floors and 62,000 square feet in an existing shell, is the latest addition to the Cupertino campus of Apple Computer. Its 260 workers, who compose the support group for the sales and marketing division, were moved from other buildings. During the three-month programming period, the architects from Robinson, Mills & Williams installed mockups of the work stations from Herman Miller's Ethospace system so that supervisors could test them.

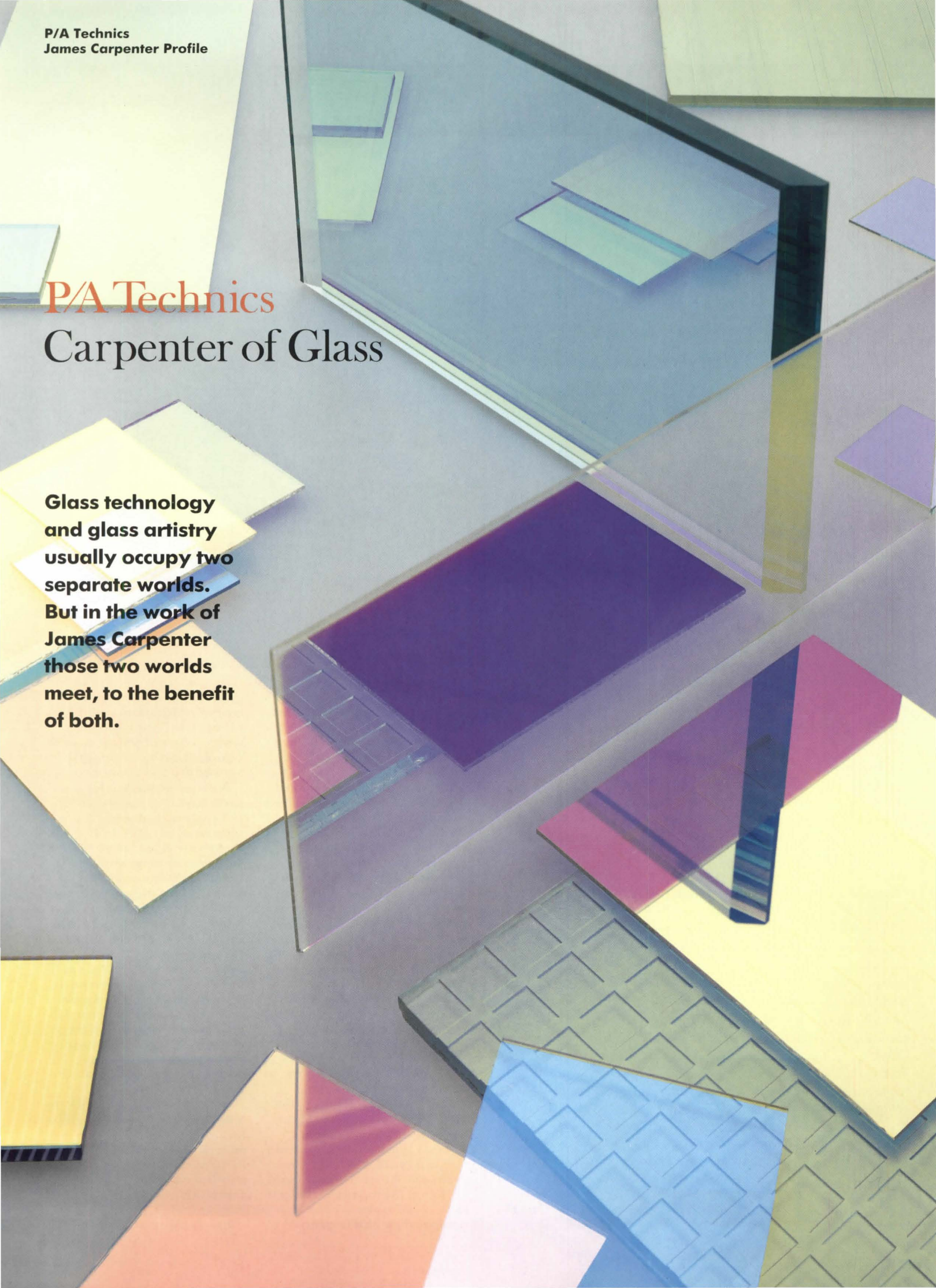
Although Apple has always had open office plans (in the beginning no one had a private space), the goal for De Anza 6 was to make the grouping and internal organization of work stations for these operations flexible. Apple's standard work station size is 8′ x 10′. The Ethospace system makes partition height variable; the maximum height here is 70 inches.

Supervisors have open corner offices; two private offices per floor with glass walls accommodate the managers. The other enclosed spaces are conference rooms.

A major challenge for the architects was the shape of the existing building. The V plan had two disparate grids that met in a perfunctory way. To clarify the circulation and create a distinctive lobby, a hole was cut through the second floor and a skeletal bay introduced as a focus for the space and a location for the reception/security desk. A broad stair leads to the second floor. The colors used in the offices are red and gold.

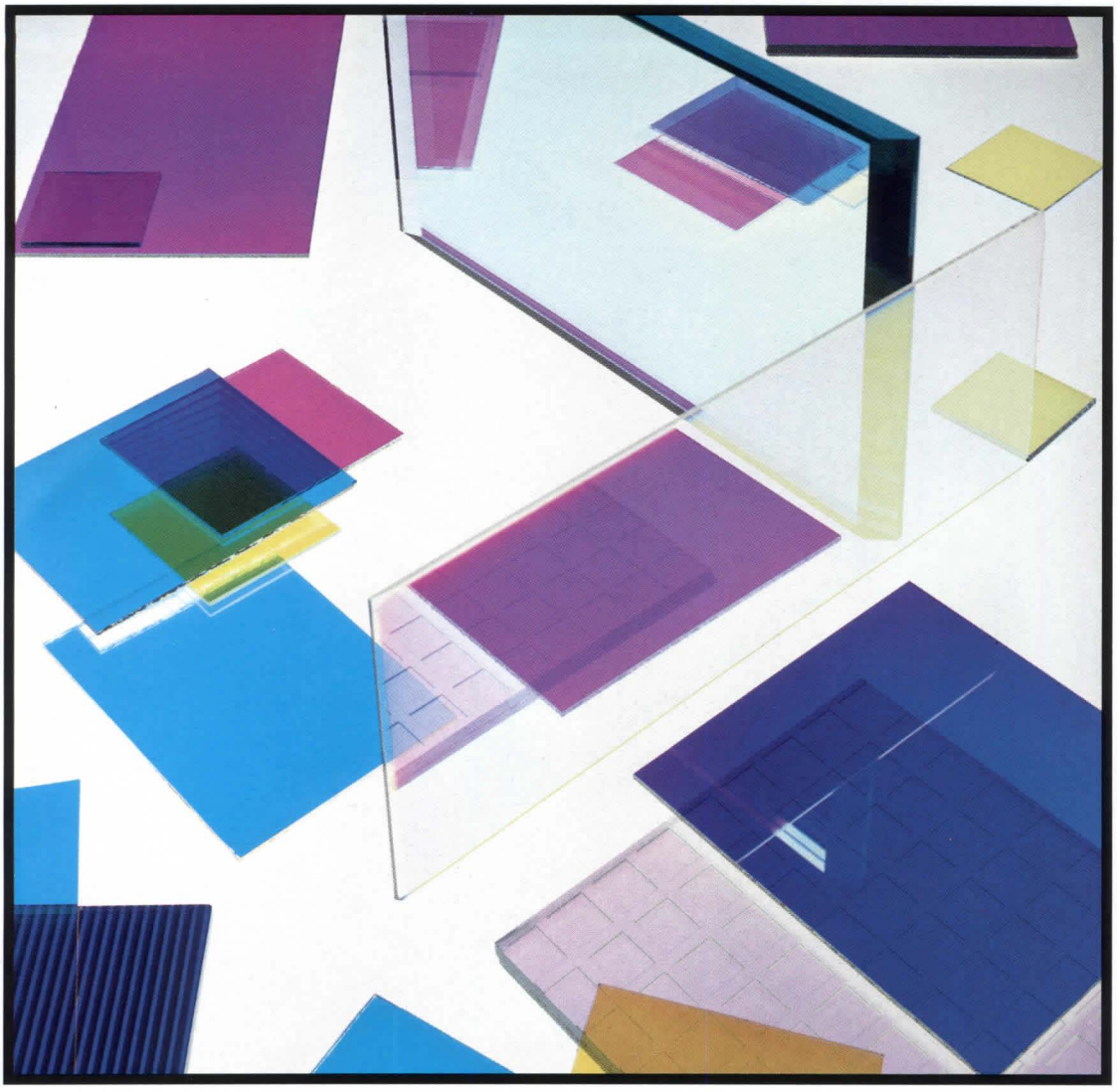
The users requested a meeting space large enough for all workers. Since no such space was possible on the upper floors, the area was placed just off the lobby.

A freewheeling atmosphere definitely pervades the office floors. Both interiors and exteriors of work stations have been personalized in a high-spirited way that reflects the company's image and reflects well upon the success of the office design.



P/A Technics
Carpenter of Glass

Glass technology and glass artistry usually occupy two separate worlds. But in the work of James Carpenter those two worlds meet, to the benefit of both.



Photos: Victor Schrager

JAMES CARPENTER is that rare person equally at home in art and technology—in his case, the art and technology of glass. Trained in design and experienced in product design and research, he has developed a dual role as an advisor to architects and corporations on the use of glass in architecture and as an artist working with glass as a sculpture medium and "as a tool for projecting light." In the process, he has gained the respect of architects, artists, and the glass industry.

This dual role of technologist and artist did not come quickly. After schooling in Austria, where he studied botany and was trained as a botanical illustrator, Carpenter entered the Rhode Island School of Design in architecture. He found himself intrigued by the small program in glass that was offered by RISD's sculpture department, and transferred into that field, where he experimented with capturing neon gas within sculptural blown glass forms. (He also worked as the curator of the RISD Nature Laboratory during his tenure there.) By the time Carpenter graduated in 1971, he had become involved in film-making, using the film to transmit light onto glass to create "sculpted environments." He exhibited in New York as a sculptor and film-maker, and supported himself by working as an industrial designer for clients that included Steuben Glass. As a result of his connection with Steuben, he became an artist in residence at Corning's Sullivan Park R&D facility, first within Corning's Steuben Glass division and then at Corning itself. During his appointment, he looked at proprietary techniques that might lead to other, different approaches to glass as an artist's medium and as a structural building material.

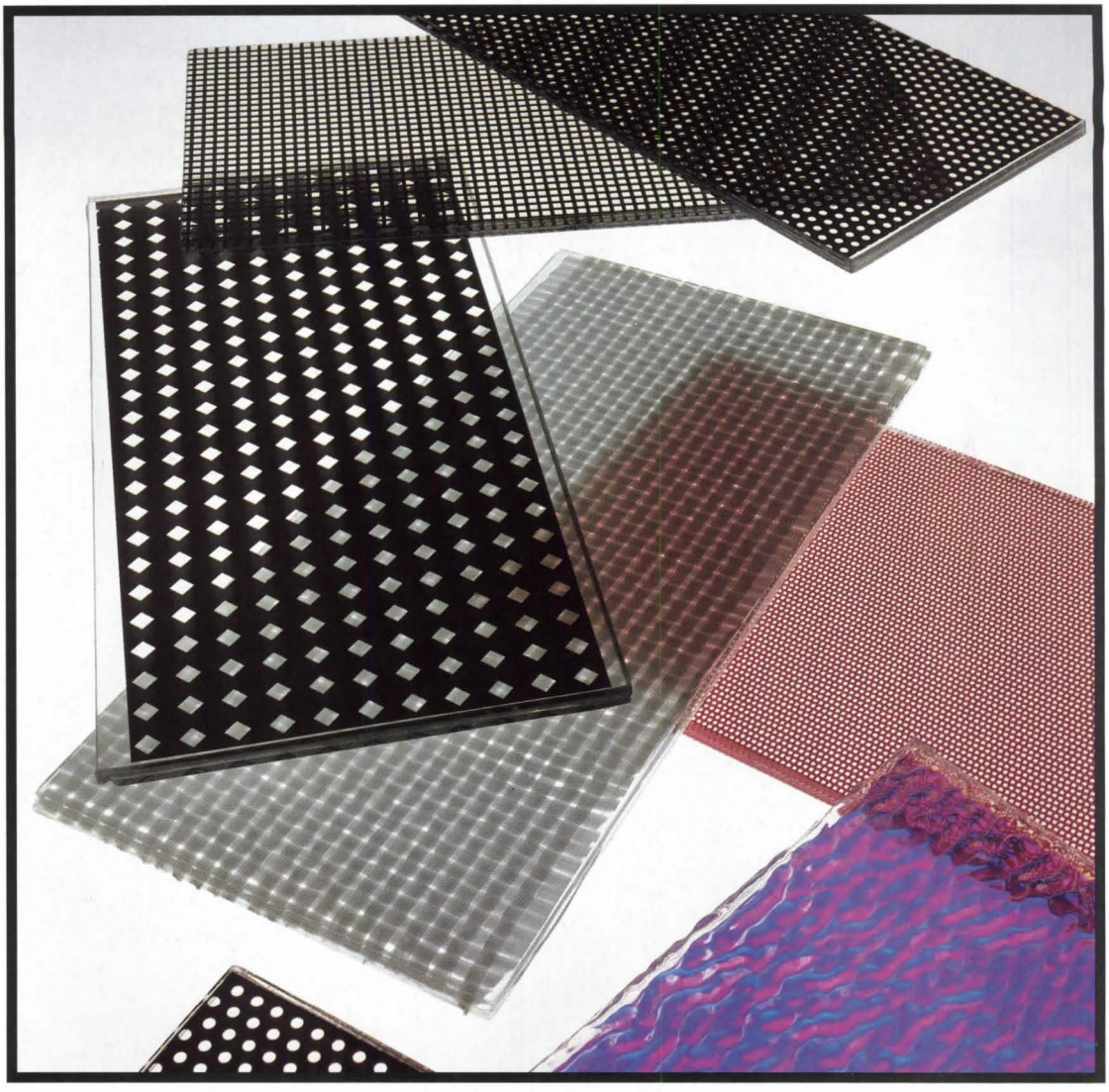
At that point, Corning was looking at new markets, and architectural glass was a possibility. Carpenter could see the architectural potential of certain glass technologies—the potential, as he puts it, "for a single piece of glass to incorporate innumerable functions." But he became frustrated by the conservatism of the industry. "The easiest thing to say," Carpenter remarks, "is 'no.' " He found the American glass industry, as a whole, to be slow in committing to new product areas, an attitude that, with some exceptions, is not very different today, although he feels positive about the innovative curiosity of smaller American manufacturers, with whom he also works.

By 1977, Carpenter was ready to move from Corning to do his own work. He applied for and received a grant from the National Endowment for the Arts' Design Arts program for development of a specific architectural product: glass that incorporated a louvering system within itself. Carpenter's aim was to develop this glass specifically for architectural applications. In 1982, British architect Norman Foster, with the project to design the HongkongBank on his drawing boards, called Corning to inquire about special glazing for the building. Corning, their interest piqued by the potential for an actual, large-scale installation, called Carpenter. Half a million dollars in research later (shared by Corning and HongkongBank), the glass had been brought through product development to reality (see P/A, June 1985, p. 159). It was a low-iron glass that had small, translucent louvers within a single layer of the material. The louvers were created by covering the glass with a template of horizontal slots, exposing the glass to ultraviolet

Coatings and Specialized Glass Treatments

Carpenter is exploring the use of selective coatings, such as in the dichroic glass he uses extensively in his work. It is separated so that one color may be reflected, and its complement transmitted. The coating on high-intensity halogen light bulbs is actually dichroic, which allows for the transmitted light to be full spectral light. The colorations specified for the coatings are charted with great precision, and the multiple layers of metal oxides are applied to the glass in controlled sequence, by means of sputtering, vacuum deposition, or pyrolitic deposition. In these cases, it is the sequence of coatings that affects the colors created. With these coatings, Carpenter has succeeded in creating visually dynamic forms, as the colors shift with the changes in the source of natural or artificial light.

The louvered glass that Carpenter developed with Corning for HongkongBank is a photosensitive glass, a glass ceramic derivative of the base research that was done by Don Stookey at Corning before World War II. By necessity, this glass is low-iron in nature, because the ultraviolet transmission used to configure the glass cannot be interrupted by impurities. The clear, low-iron glass (which can be colored) is covered by a negative or transparency of the desired pattern, and then exposed to high-intensity ultraviolet light. The light is then turned off, the negative removed, and the glass submitted to heat, usually by placing it in a kiln. It is the fluorins in the base composition of the glass, when bombarded by the UV radiation and revealed by the application of heat, that produce an opalized crystalline structure within the glass, in this case the louvers that act to block transmitted light.



Victor Schrager

Glass Laminations

Carpenter's work with laminations displays the most literal example of his integrating approach to product development in architectural glass. What Carpenter envisions are true curtain-wall constructs, in which the wall is the structure. Because we can now encapsulate within glass laminates materials such as stainless steel, fine meshes, and fiberglass, and mechanisms such as aerials within automobile windshields, he thinks that laminates can become discrete cladding, in the sense that they can integrate different structural components such as spandrels and mullions within a continuous wall. According to Carpenter, the major hurdle to overcome in the development of glass laminates is caused by variations in the expansion and contraction rates of the materials incorporated within them, although delamination has been prevented in ten- and fifteen-year-old test samples using polyester bonding materials.

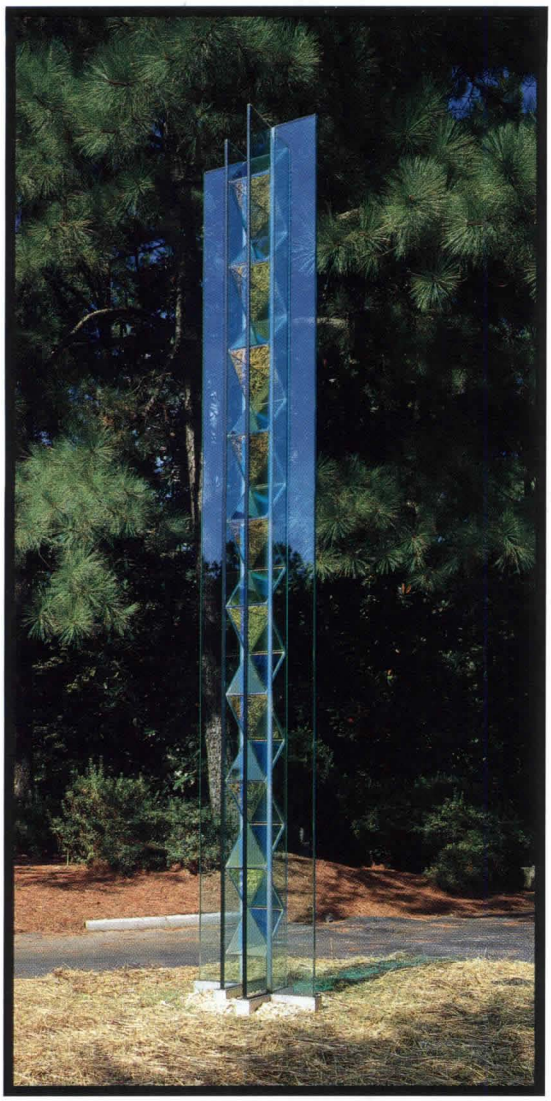
light whose angle varied with the desired angle of the louvers, and then heating the glass in a kiln. The notion was that the angle prescribed for the louvers would vary according to the glazing's position and height in the building and thus provide shade from the sun without restricting views from the windows. But, in an eleventh-hour decision by the client, another, more conventional, glass was chosen for use in the building.

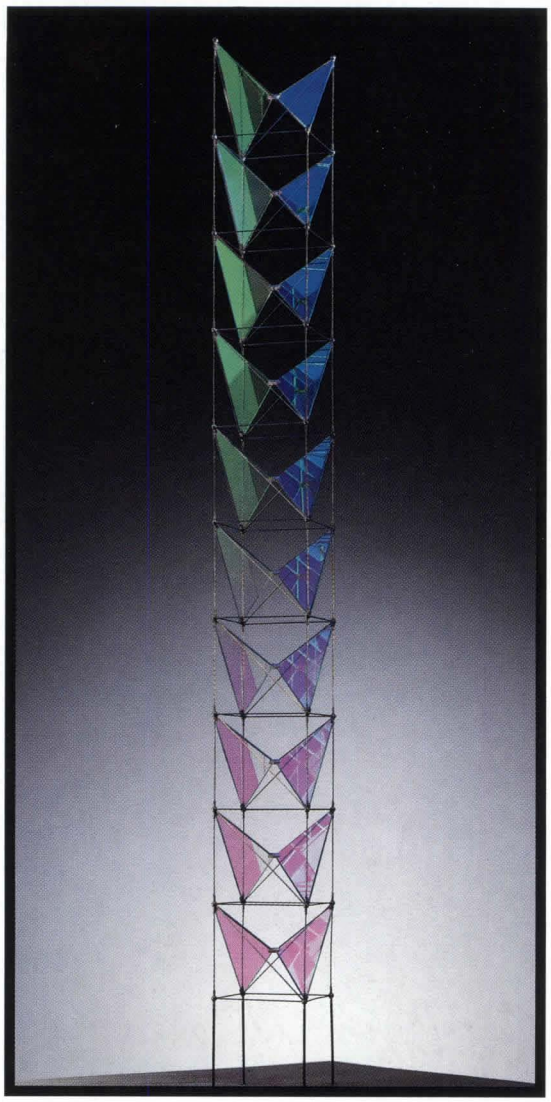
The HongkongBank's decision not to use the louvered glass was certainly a disappointment for Carpenter, but his role as a glass artist and consultant to both architects and the glass industry had begun to evolve. He says that what is now often most challenging to him is his ability to make clear to the client just how he can contribute to a particular building project. With all the complexities inherent in architectural glass technology, this is not an easy exercise. Because Carpenter's experience and talent straddle the standard boundaries between technology, engineering, and design, his varied audience requires different professional credentials. He has found himself playing different roles even with the same client. For a large architectural firm, Carpenter currently acts as a consultant to the technical group, identifying the best type of glass for a specific application, while for the same firm's design team, working on another project, he is a sculptor producing a commissioned piece. Though Carpenter is today in the forefront of an effort to open up the field of glass to new products and approaches, he still encounters the difficulties as well as the exhilaration of being a pioneer.

Consultant

As an expert on the properties of glass and its applications, Carpenter modestly describes his role as "seeing the obvious." During his stint with Corning, he was able to cut across the vertical organization of the company's research and development departments, studying emerging techniques and products targeted at specific Corning markets and evaluating their applications to the architectural market. He continues to perform the same evaluations for technology transfer on a broader, industry-wide and international level today. He has probed the American, British, Japanese, French, and German glass industries for technologies that might bear a direct impact on architecture. For example, the dichroic glass that Carpenter has utilized to create spectacular effect in, among others, his dome installation within the Portland Center for the Performing Arts (see P/A, Feb. 1988, pp. 57–65 and this issue, p. 117) and as a pair of windows in the chapel of the Christian Theological Seminary (see p. 116) is a coated glass most familiar to laymen as the color filters used in color photography. The micron-thin layering of metallic oxide coatings on the glass selectively reflects and transmits specific wavelengths within the spectrum of light. Carpenter has looked at other fields for glass technologies with architectural applications, and he believes in the efficacy of some of the glazing techniques, such as small laser beam splitters that have been developed for defense-oriented programs such as SDI.

In his role as a consultant, Carpenter is pushing for greater innovation within the industry. He points out that the introduction of low emissivity





Photos: Mikio Sekita

Tensile Structures and Structural Glass Towers

James Carpenter has been working for years to create glass structures in which the structural frame disappears. In some, he has utilized structural glass supports, with panels of refractive glass as inserts. A proposed installation for a 48-foot-high tower incorporates stainless steel cabling and machine fittings to allow the dichroic glass laminate panels to float visually. The glass is a ½-inch-thick laminate, with the coating protected inside the laminate, and the refractive quality of the glass edges is increased by an angled edge, which emphasizes the delicate linear quality of the piece. Without the constraints of safety codes, Carpenter is free to explore the aesthetic range of these structures.

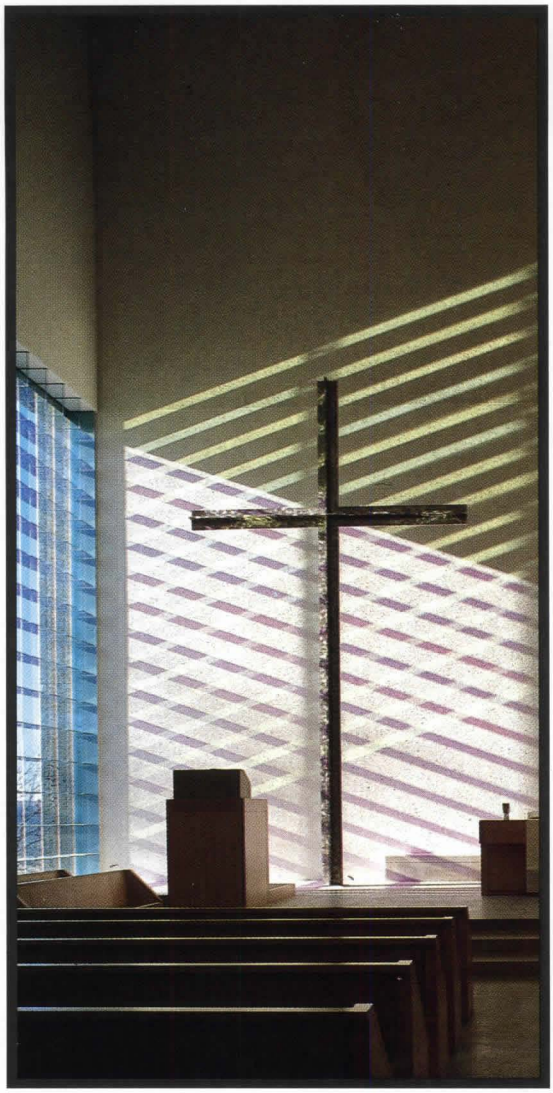
glass in this country is some 20 years behind similar products in Europe. To Carpenter, what is heralded as a "smart" window—glazing that incorporates some sensitivity to heat and light transmission and reflection—should not be simply passive, but could include some mechanical triggering device, perhaps voice-activated or photoelectric in nature. He asserts that the technology for such products has been around long enough, but conservatism on the part of the major glass manufacturers has caused delays in these advances for the building industry.

A current project of Carpenter's is the specification of an interior glazing material for the Canadian Centre for Architecture (CCA) in Montreal, designed by Peter Rose. Rose knew that he wanted a glazed partitioning system to achieve a certain level of privacy for the scholars and curators working in the building's archives, but was unsatisfied by the flatness of the surface that is produced by sandblasting. Carpenter knew that other surface treatments could generate a greater luminosity and has specified the lamination of two different solar collection glasses for the CCA project. One of the materials is So-Lite, known to have a "very fine tooth," generated by a surface texture which, under magnification, looks as though it is covered by a series of pyramids. The facets of each individually collect the light that falls onto the 45-degree angles and reflect light onto surrounding pyramidal planes, thus actually bending and increasing the light gathered. Carpenter had the So-Lite laminated to another solar collection glass, one with a very clear, smooth texture. The resulting surface of the glass is luminous, and its performance is improved by actually projecting the captured light further into the building's interior. The CCA interior glazing is an example of the mixed glazing techniques that Carpenter believes can grant glass a more dynamic role in architecture.

Commissioned Artist

"Controlling this thing called light," is how Carpenter refers to his challenge as an artist working with glass. In two major architectural installations, working with Barton Myers in Portland, Oregon, and Edward Larrabee Barnes in Indianapolis, Carpenter has worked as a commissioned artist. While in Baltimore's rehabilitated train station en route to Washington, Barton Myers watched with fascination as Carpenter installed cast glass. "You must be an architect," Carpenter said. "No one else would be so interested in what I'm doing." The men struck up a conversation, and when the One Percent for Art committee for the Portland Center for the Performing Arts drew up a list of competitors for the commission, Myers asked that they include James Carpenter. He won the commission, through a long process that involved discussing the appropriateness of a nationwide vs. local competition, calming fears expressed over the abstractness of his scheme, making arguments in support of the presence of domes within public performance halls, and building and presenting an elaborate model. Such lengthy and complex procedures are difficult, and Carpenter finds the machinations and procedures of public art commissions similar to the gallery politics that fine artists must often negotiate.

In contrast to consulting, where he is often





Photos: Balthazar Korab

Christian Theological Seminary

The windows created for the Christian Theological Seminary's chapel transmit light into the chapel's 80-foot-high spaces, "making the room a white reflecting box," says Edward Larrabee Barnes, architect for the building. The colors change as natural light moves into the room from the southwest, from noon to sunset, tracking a subtle and complicated path throughout the space. Even Carpenter was surprised by the complex reflection/transmission patterns that were created by the structurally glazed and gridded glass wall that is fitted with horizontal members of dichroic glass. As a result of the boxed grid's configuration, the two reflected and two transmitted images are set up from each grid section. Barnes credits Carpenter's mastery of light to convey the spiritual quality that they sought.

Once the basic grid structure was decided upon, technical issues specific to the material, such as air condensation, as well as details for jambs and connectors, had to be refined. Barnes remarked that the inclusion of dichroic glass allowed the effect of light that he initially thought might have to be accomplished by the use of prisms. The cost of prisms proved exorbitant, and at this point, Barnes feels that not only did the coated glass allow the project to be affordable, but that it is, in fact, more dramatic.

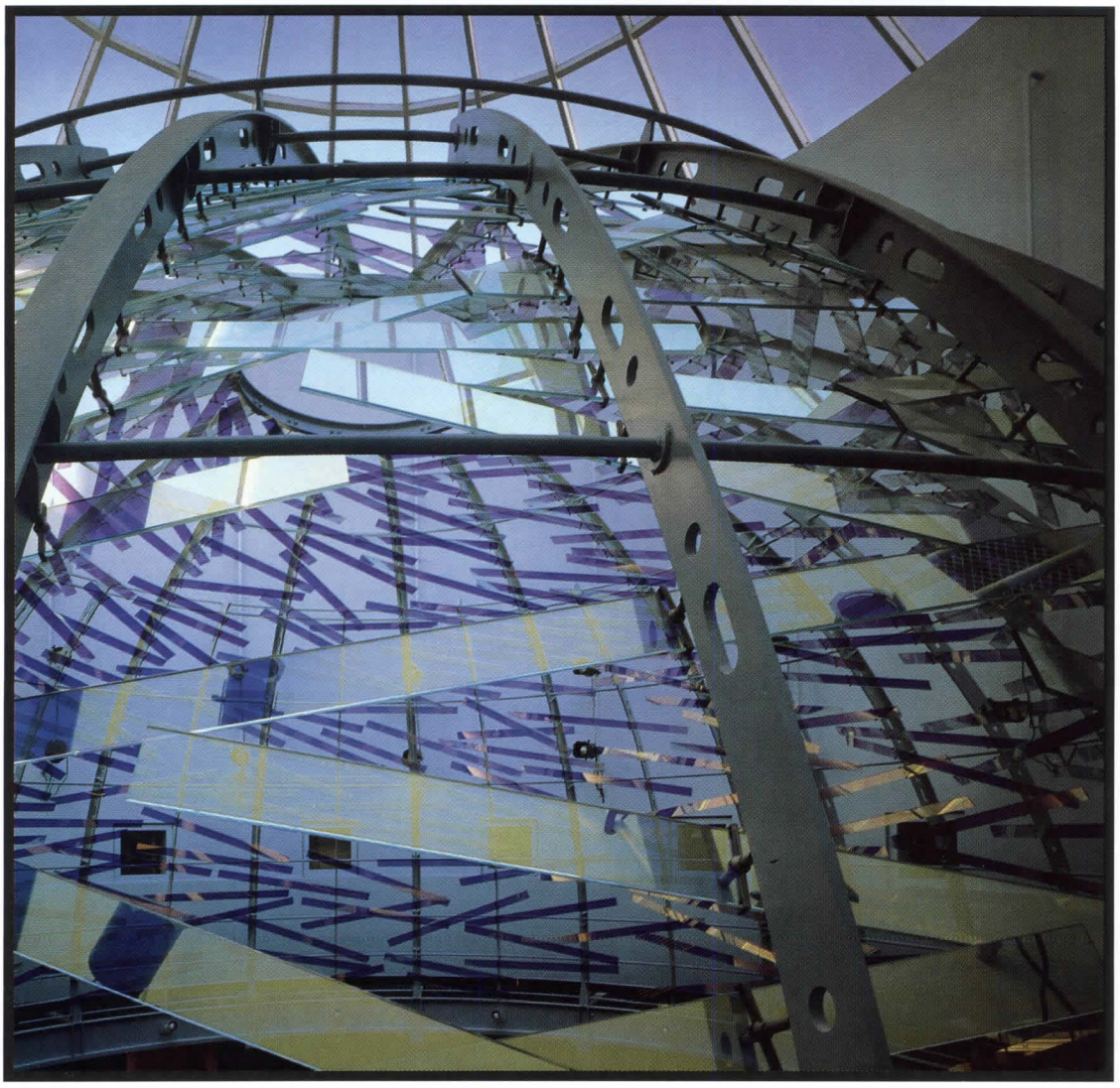
brought into the design process for a specific task, in his role as commissioned artist, Carpenter is involved from design through installation. For Portland's Spectral Light Dome, as Carpenter titles it, he designed (with the help of structural engineer Robert Silman) the entire sculpture and frame, down to the level of the stainless steel holding clips, oversaw fabrication of the metal, and actually installed, with the help of others, the 500-odd pieces of dichroic glass that make up the piece. "I've never met anyone who knows as much about glass," says Myers, "and I've never met an artist that knows so much about production."

When Edward Larrabee Barnes, who designed the buildings that make up the Christian Theological Seminary in Indianapolis, first talked with Carpenter, he knew immediately that "we were on the same wave-length." Barnes had an explicit criterion when he approached Carpenter about the windows in the seminary's chapel. Eschewing the sentimental or anything that was specifically "design-y" (including stained glass), Barnes sought windows that would deal specifically, and almost exclusively, with the properties of light. Initially, prisms were considered, but with affordability an issue, Carpenter was able to offer the spectral variations made possible by dichroic glass's selective transmission and reflection. Barnes and Carpenter worked through several conceptual schemes, dismissing some that felt overly designed, before concentrating on full-height, clear glass stiffeners as the underlying structure to the window's abstract composition. The "egg-crate grid," into which Carpenter introduced the horizontal bands of dichroic glass, rendered the windows abstract enough to meet Barnes's criteria, allowed the chapel's interior to become, in Barnes's words, "a white reflecting box," and introduced the element of light as a changeable and continuous presence in the space. Both architect and artist were surprised and pleased with the rich subtlety and complexity of the transmission/reflection patterns that the windows create. Barnes also notes that Carpenter's understanding of the technical as well as the aesthetic issues allowed the detailing and performance of the installation to go beyond adequacy. "The refinements Jamie was able to make resulted in exquisite details," Barnes said.

Artist

Carpenter has also done recent work on his own in designing freestanding glass structures of different scales. The most recent is the exploration of a structural a-spension system developed by Buckminster Fuller as an alternative way to create a dome. By using a combination of glass and cabling on the 45-foot-diameter structure, Carpenter's aim is to strip the structure down to the barest elements, allowing the glass to float and not enclose. Carpenter's long-time interest in engineering surfaces emerges in these exercises, and he points out that "no one yet with the technical background in the properties of glass has developed the visual pragmatism needed for architecture."

Above Carpenter's desk is a listing of three topics that he wishes to focus on in the future: increasing control over selective reflectivity, increasing the tensile strength of glass, and increasing the fire-resistant capabilities of glass. At first, the three seem somewhat skewed to the technical side, but then

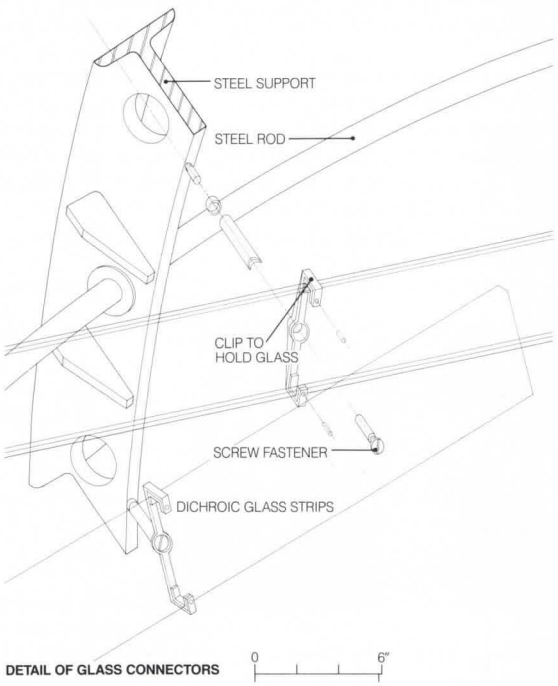


Dick Busher

one realizes that with Carpenter, the separation between the technical and aesthetic is arbitrary. By increasing control over the selectivity of coatings, Carpenter wants to study, for instance, the rotation of dichroic glass, thus creating specific lighting effects in controlled sequences. An inspiration for this was the way in which light coming through the windows of the chapel at the Christian Theological Seminary depends on the rotation of the earth and the positions of the earth and the sun. The second issue, tensile strength, relates as much to his work on freestanding pavilions and towers as it does to what he calls "true" curtain-wall construction. The third area of study focuses on a favorite Carpenter topic. If the fire-resistance ratings of glass can be improved, more glazing will be allowed within building interiors. That will increase the possibilities of projecting light, both artificial and natural, into such areas as interior stairwells.

These three topics, like so much of Carpenter's work, reveal his architectural interests. He uses glass, an architectural material, to build structures or improve their performance, both architectural tasks. And he approaches his work with an architectural mindset, moving back and forth between aesthetic and technical considerations. James Carpenter's example shows not only what glass technology has to offer architecture, but what the problem-solving methods of the architect have to offer art and industry. ***Mary E. Dolden*** ■

The author is a writer and independent consultant to design and architecture firms. She is based in Cambridge, Mass.



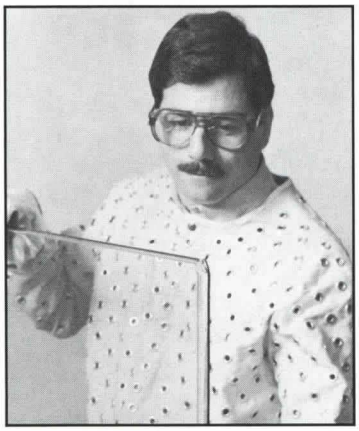
DETAIL OF GLASS CONNECTORS

The Spectral Light Dome

In the dome installation at Portland's Performing Arts Center, Carpenter's scheme included some 500 to 600 pieces of dichroic glass, held in suspension by a system of clips attached to a steel substructure beneath the building's exterior dome. Because his design for the dome included historical references to open-air theaters and formed a visual conclusion to the building's lobby, a certain diaphanous quality was desired. The density of the glass is consequently low and its coloration subtle. Carpenter has taken the material's chameleonlike nature and turned its changeability to an occasion for wonder.

Some concern was evinced early on that the piece was too abstract for Portland's taste. Carpenter's elegant drawings, some of them looking more like celestial charts than construction drawings, made the dome seem perhaps more dense than it is, but this may again be charged to the nature of glass. The dynamic quality of the light changes caused by the dichroic glass is not necessarily evident, and yet the overlapping 5- and 3½-foot strips create a shimmering quality within the 30-foot dome. Barton Myers comments that while there was some concern that the piece would dominate the space, what has happened is that the abstractness of the Spectral Light Dome has continued the contradiction set up throughout the building between the literal and the abstract, without detracting from the formality of the lobby. "With just the right amount of abstraction, his piece has conquered the conservatism of Portland," Myers reports.

Technics-Related Products



The new OptimEdge insulating glass unit offers four new energy-saving features. The two panes are welded together at their edges for an all-glass construction; one pane has a special low-E coating, and the space between the panes, increased from 3/16 to 7/16 inch, is filled with argon gas instead of air. PPG Industries.

Circle 104 on reader service card

Glass blocks are available from this company in clear or bronze tints, and in an array of shapes and raised decorative patterns. Their eight-page brochure includes color photos, dimensions, and brief technical information. Saint-Gobain.

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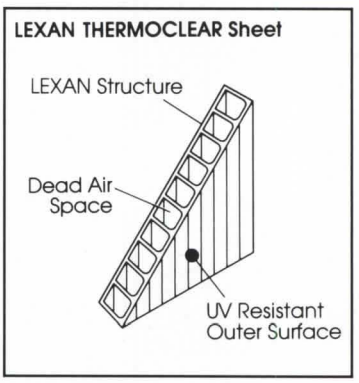


"Tempered Glass Technical Information," an eight-page brochure, explains the process by which tempered glass is made and discusses its strength and safety characteristics. Uses, handling and installation and further reference sources are covered. Glass Tempering Association.

Circle 201 on reader service card

The "Acoustical Glazing Design Guide" offers generic information on determining glazing requirements in buildings exposed to the most common types of noise: aircraft, highway traffic, and rail transportation. The guide also specifically discusses the company's Saflex products. Monsanto.

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LEXAN polycarbonate sheet is an impact-resistant glazing for skylights and high-traffic or bullet-resistant applications. For thermal protection and high-impact strength, a double-walled, extruded LEXAN Themoclear sheet is available. General Electric Company.

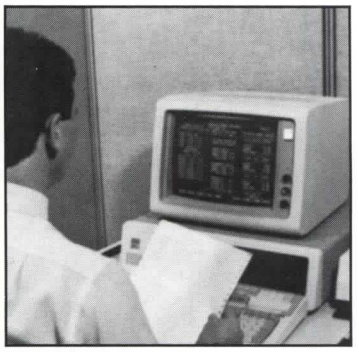
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Insulating glass can be created on-site using this system, developed in Denmark. An extra sheet of glass is added to an existing window, separated from the original pane by a specially designed spacer. The system can be used with wood, metal, or aluminum frames. SIGNA Systems, Inc.

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Flat Glass Products for 1988 is a 28-page color-illustrated catalog with information on Eclipse® reflective glass and Mirropane E.P.™ transparent mirrors. Topics covered are product characteristics, performance data, thermal stress, cleaning, and maintenance. Other products are clear and tinted float glass, furniture glass, and mirror glass. Libbey-Owens-Ford Co.

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Comfort-E low-emissivity glass is the subject of a software package that estimates the energy savings possible with the glass. The IBM-compatible program estimates annual energy savings compared to other types of glazing as selected by the user. AFG Industries, Inc.

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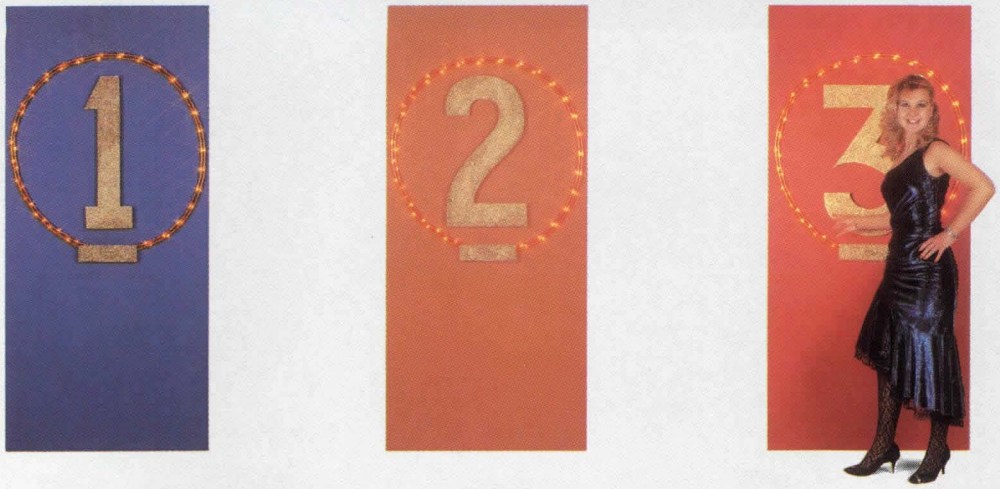
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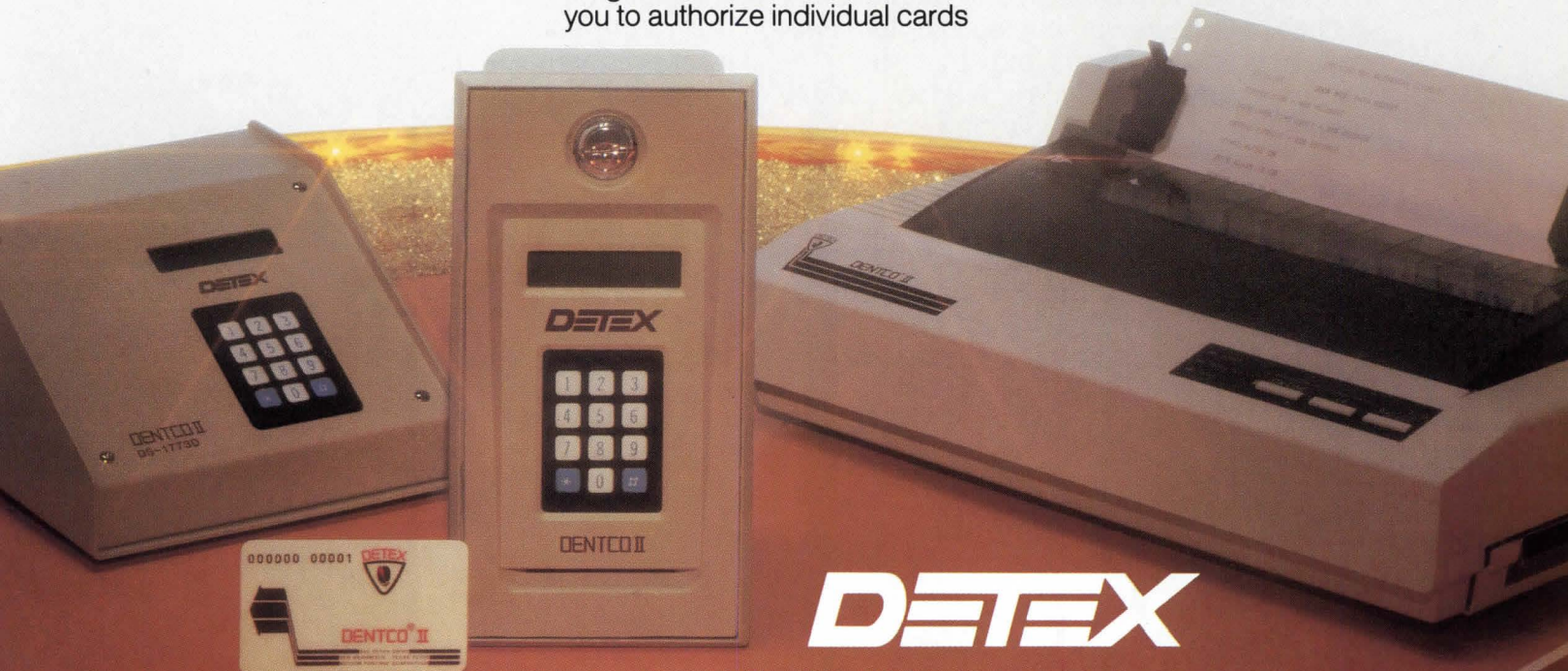
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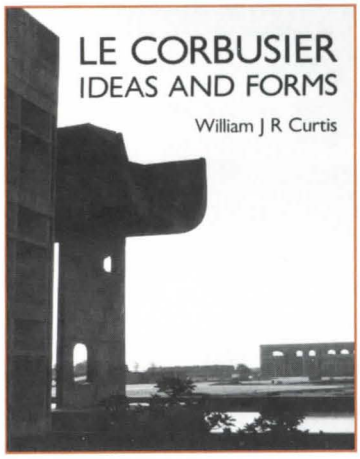


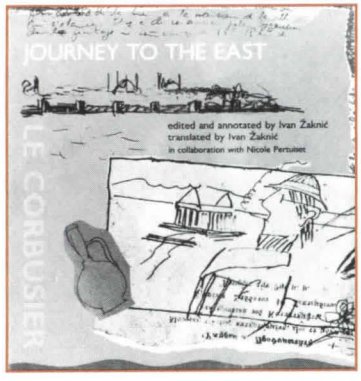
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Books

Le Corbusier: Ideas and Forms *by William J.R. Curtis. Rizzoli, 1986. 240 pp., illus., $40.00.*

Journey to the East by Le Corbusier, *edited and translated by Ivan Zaknic in collaboration with Nicole Pertuiset. MIT Press, 1987. 270 pp., illus., $24.95.*





Corb's Intent

The year 1987 marks the centenary of Le Corbusier's birth. In celebration of this occasion, international symposiums have been staged, myriad exhibitions mounted, major writings by Le Corbusier reissued in French and translated into English, and important monographs published and in some cases republished. Especially noteworthy among America's contributions to this occasion is William Curtis's *Le Corbusier: Ideas and Forms.* As the title suggests, this book is concerned with both Le Corbusier's work and the ideology basic of its formation. Curtis's biography recounts the architect's complicated life in chronological fashion. Its 15 chapters are divided among three sections comprising treatments of early, middle, and late segments of Corb's career, and they are illustrated with some 240 photographs, 30 in color.

Curtis's intentions for this book are ambitious. Dismissing the tendentious characterizations of the past, he expresses a desire to de-mystify the figure of Le Corbusier, resorting to newly unearthed facts relating to Corb's career from the recently published materials held by the Fondation Le Corbusier as well as from other archival holdings. He subjects this material—buildings, sketches, drawings, models, as well as paintings and sculpture—to what he terms an "anatomy of style." In so doing, the author hopes to "get behind the facts" of Corb's architecture, to discover something more fundamental: ideas. Curtis seeks to avoid overgeneralization by attaching these ideas to a specific consciousness, and so he parallels his analysis of form with a simultaneous analysis of artistic intention. The author hopes to "reconstruct artistic intention" and thereby reify the mind of the master. As intentions are reified, so is Le Corbusier himself objectified, transformed, in Curtis's description, into a "fact of history."

(continued on page 122)

Corb's Travels

The first English translation of Le Corbusier's 1911 travel journal (published in French in 1965) is one of the more interesting products of the architect's centennial celebration. *Journey to the East* reveals Charles-Edouard Jeanneret to be a romantic, self-conscious youth, with a keen aesthetic eye but little of the certainty with which he later wrote as Le Corbusier.

The trip, in which Jeanneret and a friend saw Hungary, Bulgaria, Turkey, and Greece, is not unlike one a young student might make today. The two lived cheaply and spent their time searching for the region's true character, a mission made difficult by what Jeanneret calls the "Europeanization" of the East. His concern with this trend is seen in a search for native Hungarian pottery, which took him and his companion through all the sad, international, and rootless bric-a-brac that inundates all Europe." Given Corbusier's later export of an "international" architecture to the entire world, the irony is hard not to notice.

Jeanneret's writing is a hit-or-miss affair; some of his descriptions of places and events are beautiful, others flat, awkward, and confusing. He apologizes for his writing, explaining that "my style is muddled just as my comprehension of things which is, itself, still muddled."

In the book's most engaging chapter, which describes his time in Athens, the image he presents of himself ascending the Acropolis (and returning daily for six weeks to sketch it) is more compelling than his jumpy description of the monuments themselves, especially when he describes a feeling not uncommon among artists: "Very often, I left the Acropolis burdened by a heavy premonition, not daring to imagine that one day I would have to create." Such words are moving from any aspiring architect; from Le Corbusier they are an inspiration.

Mark Alden Branch ■

Controlling Air Movement *by Terry S. Boutet, AIA. McGraw-Hill, 1987. 318 pp., illus., $46.50.*
This informative and readable design guide demonstrates how to use principles of air movement to make buildings more healthful and energy-efficient. Examples tested in a smoke chamber are discussed.

Louis H. Sullivan: The Banks *by Lauren S. Weingarden. MIT Press, 1988. 144 pp., illus., $25.00.*
In this well-illustrated book, Weingarden champions Sullivan's eight Midwestern banks, arguing that they are the culmination of, not the eccentric addenda to, Sullivan's career.

The Monumental Era: European Architecture and Design 1929–1939 *by Franco Borsi. Rizzoli, 1987. 208 pp., illus., $40.00.*
Interesting photographs enliven this assessment of the Neo-Classical movement in the 1930s, which discusses the adoption of Classical architecture by both dictatorships and democracies.

Hospitals: Design and Development *by W. Paul James and William Tatton-Brown. Van Nostrand Reinhold, 1987. 210 pp., illus., $67.95.*
A review of the last 80 years of hospital design fills the first part of this British book. The latter portion offers advice on planning hospital facilities according to functional zones.

Drawing the Future *by Paul Stevenson Oles. Van Nostrand Reinhold, 1987. 161 pp., illus., $37.95.*
Well-known renderer Steve Oles discusses over sixty of his drawings from the last ten years. Oles's comments range from technical points to tales of the rendering's role in a project's ultimate realization.

Books *(continued from page 121)*

The coexistence of these two approaches—the analysis of form and of artistic intentions—presents a problem. Initially, Curtis seems to assume that specific artistic intentions may find expression in certain forms—a plausible methodological position. Later, however, Curtis also seems to assume that a given form necessarily provides evidence of the same set of artistic intentions. This may or may not be the case, as there is no assurance whatsoever that a specific form did not emerge from completely different sets of intentions. The inherent tautology of Curtis's dual approach, it seems to me, causes him to misread Le Corbusier's architecture in certain basic ways.

All three sections of Curtis's book are characterized by what the author sees as an interplay of form and idea. Epigraphs set the pace, moving briskly from the idealistic (even Platonic) citations in the opening chapters to the phenomenological in the last. Not surprisingly, it is in the realm of fact that this book is most successful. The book's first section deals expressly with Corb's intellectual origins. Curtis's discussion focuses on the aspirant's study with Charles L'Eplattenier at the School of Art of La Chaux-de-Fonds as well as his early familiarity with the writings of John Ruskin, Owen Jones, Eugene Viollet-le-Duc, and Ernest Renan, to mention but a few. These intellectual forces were valuable to the romantic young man, Curtis argues, for they suggested ways by which nature and architecture might merge via abstract laws of composition. After leaving the Art School, Charles-Edouard Jeanneret-Gris (Le Corbusier's original name) apprenticed in two ateliers: Auguste Perret's in Paris and Peter Behrens's in Berlin. In these offices, the abstract compositional laws were given material form through the former's faith in structural rationalism and the latter's interest in typology. This emerging rationalism was furthered by his early exposure to Classical architecture during a trip to Italy, and of course, the now-famous "Voyage d'Orient." Classicism came to be seen by him, Curtis argues, as more than an abstract formal or epistemological system; it also provided a distinct social vision. This vision took shape early in La Chaux-de-Fonds when, inspired by the writings of Alexandre Vaneyre, Jeanneret-Gris came to assign Classical forms to the emerging nationalism of the Suisse Romande. The best evidence of this Classical preoccupation occurs in such projects as the houses for his parents, the Favre-Jacquot and Schwob families, and the La Scala Theater in his home town.

In Section Two, Curtis notes that, following financial problems surrounding the construction of the Villa Schwob, Jeanneret-Gris fled from La Chaux-de-Fonds. Retrenching in Paris, he abandoned the Classical ideal for a time and lived the life of a bohemian. It was then that he took the pseudonym that was to characterize his architectural production for the rest of his life: Le Corbusier. His early artistic efforts during the period were not built but painted. Founding the post-Cubism movement Purisme with the artist Amédée Ozenfant, Corb was to prepare his first widely-published book: *Apres le Cubisme*. Although Curtis makes little use of this book (or, for that matter, Corb's later ruminations on the nature of contemporary painting, *La Peinture Moderne*), he does maintain that Corb became interested at this time in the formal mechanics of art and in the meanings of form itself. These preoccupations were fundamental to the creation of Corb's architectural masterworks of the period, particularly the Villas Stein and Savoie, and to Corb's seminal statement of architectural semantics, the Five Points.

Le Corbusier later came to criticize implicitly the abstractions of the 1920s especially as he explored the sociological aspects of his early urbanistic works, such as the Ville Contemporaine, Pessac, and Plan Voisin. His limited formal repertoire, Curtis claims, also was substantially expanded after later contact with exotic, often pre-technological cultures. From these experiences, it would appear that Corb decried architecture as a revealer of social values. A number of small architectural projects were symptomatic of these expanded interests, and in this regard Curtis cites the importance of the De Mandrot, Errazuris, Mathes, and Weekend Houses. Curtis also sees such large-scale works as the Mundaneum, League of Nations, Palace of the Soviets, not to mention later urban designs for the Ville Radieuse and Algiers, as representative of Le Corbusier's understanding of the institutional nature of architecture as both a repository of cultural values and a social condenser.

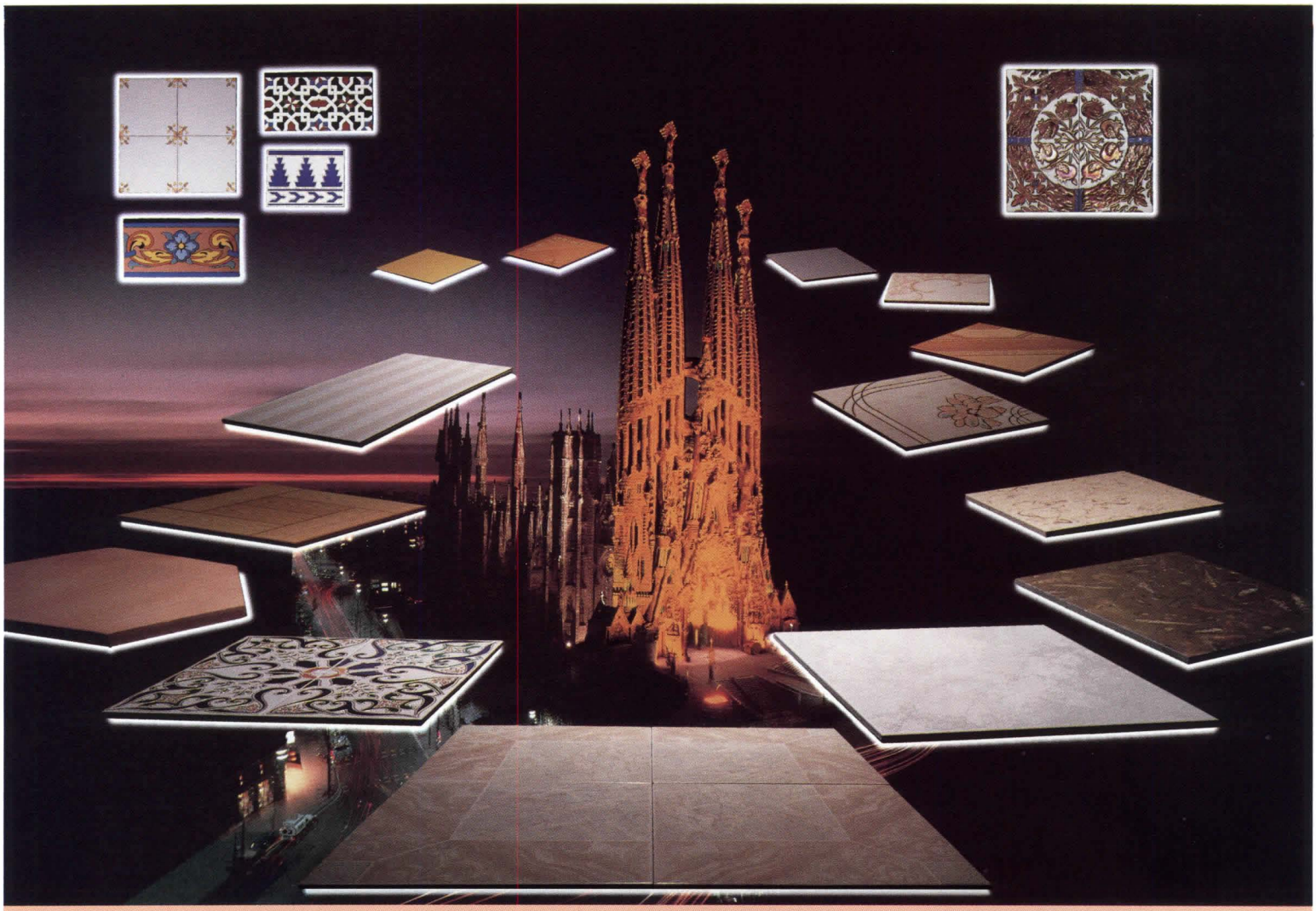
The self-criticism suggested by these last projects, so Curtis contends, was basic to the new formalism of the period immediately following World War II. Section Three discusses the panoply of new forms occurring during the later part of Le Corbusier's career in such buildings as the Marseille Block, the chapel at Ronchamp, and the monumental complex of Chandigarh. Marseille, for Curtis, becomes the image of technocracy crosscut with the myth of the Mediterranean. Ronchamp becomes for Curtis the polyvalent sacral emblem conjoining Christian and pagan rite, while Chandigarh outspokenly exploits monumental structures, with an Indian slant, to invoke a national consciousness. The final chapters of this section—on Ahmedabad and other late works—become paraphrases of Curtis's early intuitions. This last portion is highlighted by a close reading of Harvard's Carpenter Center, recapitulating Curtis's understanding of the interplay of architectural form and ideology in Corb's late production.

Despite the factual strength of Curtis's book, there are some insufficiencies. For example, its treatment of major texts, with the exception of *Vers une Architecture*, is sadly cursory. Formal discussion is also inadequate. Although the author notes that this book seeks to counter the formalistic obsessions of latter-day critics, there are occasions when this kind of interpretation is appropriate—as when the works under question have been conceived with specifically abstract formal operations in mind. The Purist villas of the 1920s demand such a handling, and it is for this reason that the chapter on them is particularly disappointing. Here, Curtis provides us with neither illuminating iconographic treatment, nor with new architectonic understandings. Houses like the important Maison Planeix, with its extraordinary site and garden section, remain as vague as they did before Curtis's discussion. His treatment of the Villa Savoie, in particular, seems flaccid.

There may be a reason behind the author's discomfort with purely formal discussion, one having to do, I believe, with the means of argumentation outlined above. Form is never considered as an end in its own right; rather, form is always at the service of intention, as ideology's mode of expression. This assumption is basic to Curtis's argument, even when the author notes that Corb's intentions might, in fact, have been anti-ideological, as they appear to have been during the architect's brief flirtation with Surrealism.

Curtis's belief in the dependency of form upon idea is particularly well illustrated in his discussion of a building he knows very well, Harvard's Carpenter Center—the work with which the author concludes the book. Although Curtis appears correct in describing the provenance of the building's major formal quotations—ramp/promenade, brise-soleil, guitar-shaped studio spaces, etc.—certain significant features of the design seem to escape his ken. First, the handling of promenade in the Carpenter Center is distinctly different from its use in, say, the Villa Savoie. Unlike the earlier ramp, which self-consciously moves from darkness to light, cave to sun-filled nature, the origin and destination of the ramp at Carpenter Center is in no way so powerful, directed, or clear. The ramp begins and ends along a street. The poetics of passage, instrumental to expressing the significance of movement in Corb's early work, seem to have eluded the master here. Or have they? Could it be that processional beginning and end have no point at Carpenter Center? By equating beginning and end, could it be that Corb undercuts the notion of distinct spatial and psychic progress implied in his earlier works? Possibly. This suspicion is reinforced by other devaluations of earlier motifs occurring in the building's composition. As Corb rethinks the metaphysics of promenade, so too does he review the nature of façade. The major elevations at Carpenter Center, for instance, are composed, ordered, and unified. Curtis's theory of expression would suggest that the interior of the building would be similarly unified. However, this is not the case. As the ramp traverses the site and building envelope, it bifurcates the overall building mass, violently slicing through its form, creating, in effect, two distinct buildings unified via façade. The façade can be seen as a kind of "mask," dissembling the spatial "truth" of the building just beyond. What is the point of this "truth"? For Corb, it would appear that there is no point per se. Rather, the doubling of spatial enclosure would suggest an interplay of evenly counterbalanced and equally plausible spatial alternatives. The architectural discourse here is a matter of making choices, and not a matter of aes-

(continued on page 125)



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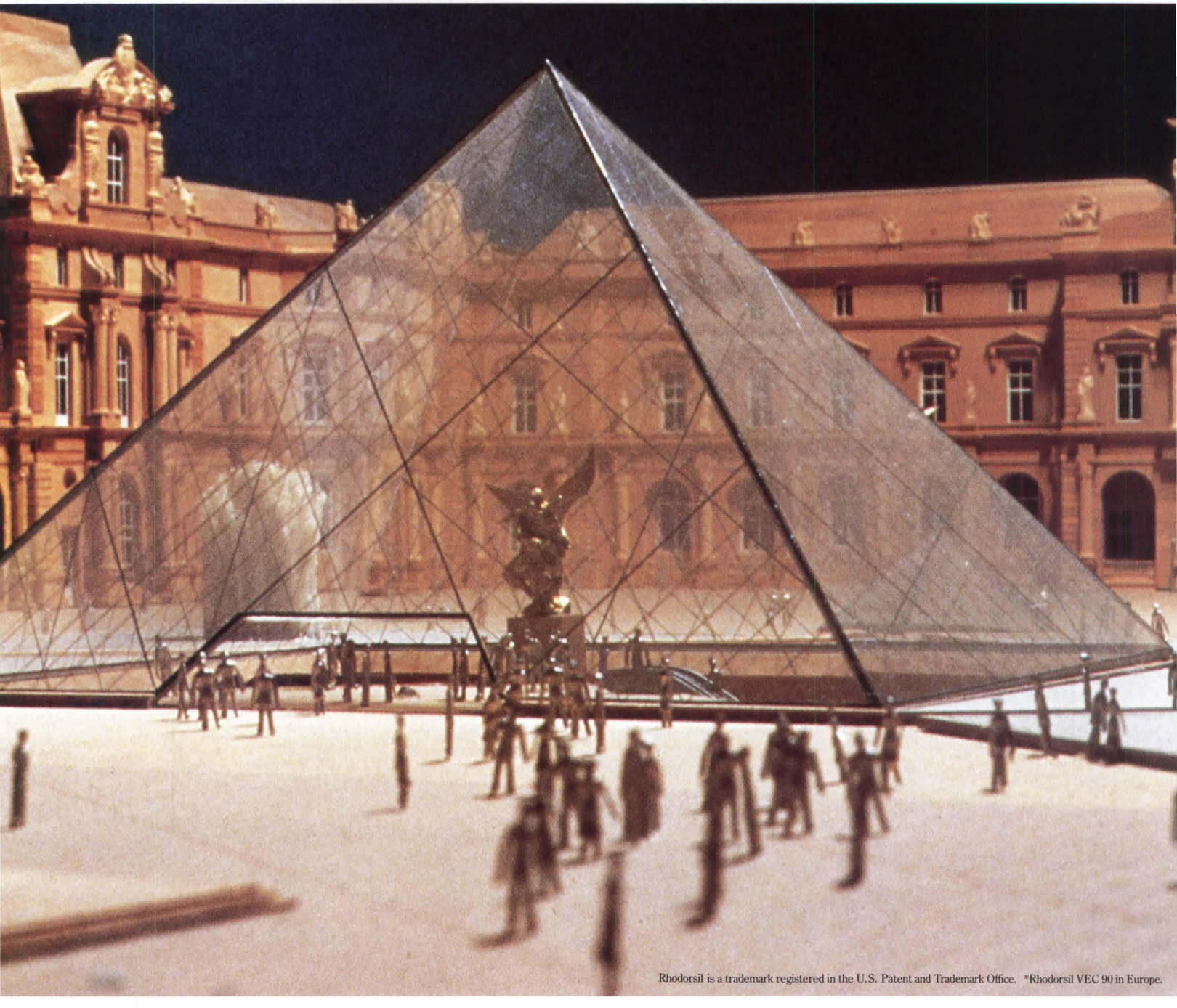
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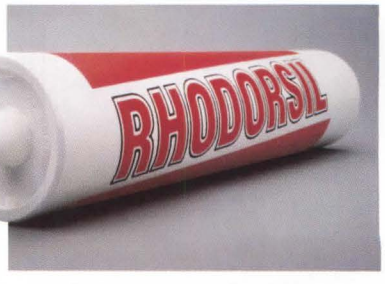
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Books *(continued from page 122)*
thetic truth.

It is important to note that Corb provides us with no set agenda, no objective, in our movement through the domain of art. We get no specific points of view. Instead, we catch glimpses in passing. We see not art's definitive statements, but the process, the making of art. As passage through the building suggests an ongoing process of movement, so too does the architecture suggest not the finished artwork, but the endless possibilities engendered in the creation of art. Art, at Carpenter Center, is to serve as emblem, not of a discursive truth, but a process of discovering and becoming. Art no longer subordinates itself to ideas as purveyors of truth, but now survives on its own terms.

There is a final irony here. Despite the author's attempts to present his subject matter objectively, it is clear that Curtis's final valuation of Corb's work hinges on what it represents and not upon what it is in fact. For Curtis, value cannot be ascribed without an awareness of the intellectual domain from which art emerges. This approach suggests that the author believes in an instrumentality of architectural discourse (form implies idea) to which Corb may have subscribed, but not totally, and cerainly not during his entire career. As we have seen, Corb at times even appears intent upon overturning such discursive instrumentality. Furthermore, Curtis's assumptions concerning the nature of architectural discourse never permit him to see Corb's architecture as self-sufficient, or, paradoxically, objective. One sign of this paradox in the book is the author's undervaluation of the work's formal structure and visual power. It is at this level that Le Corbusier's architecture is most keenly felt. ■

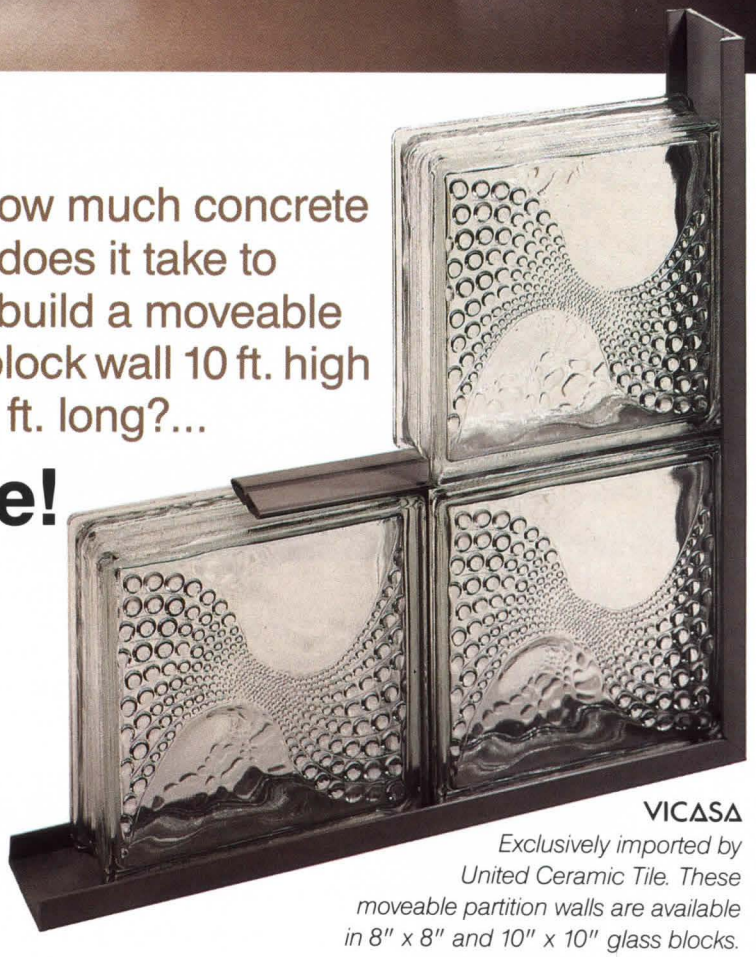
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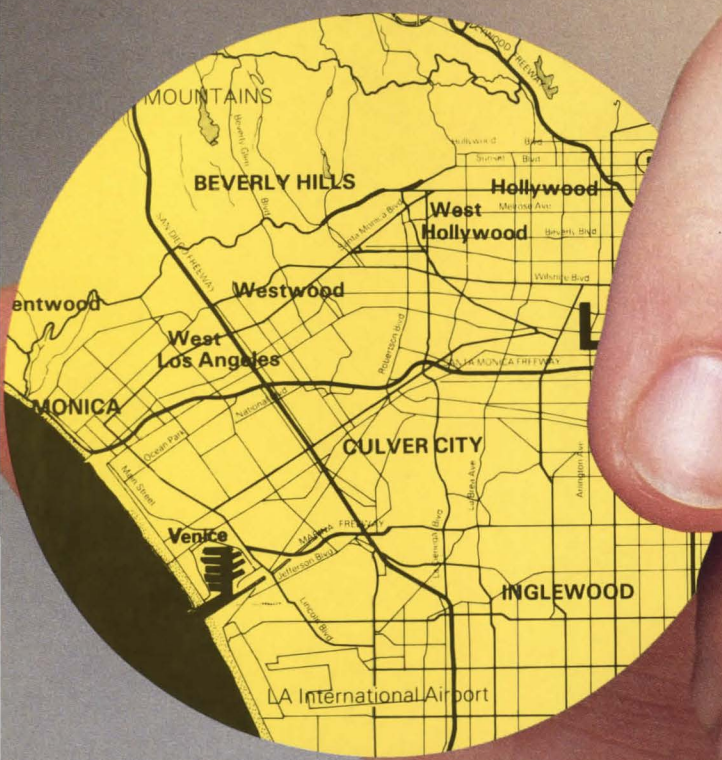
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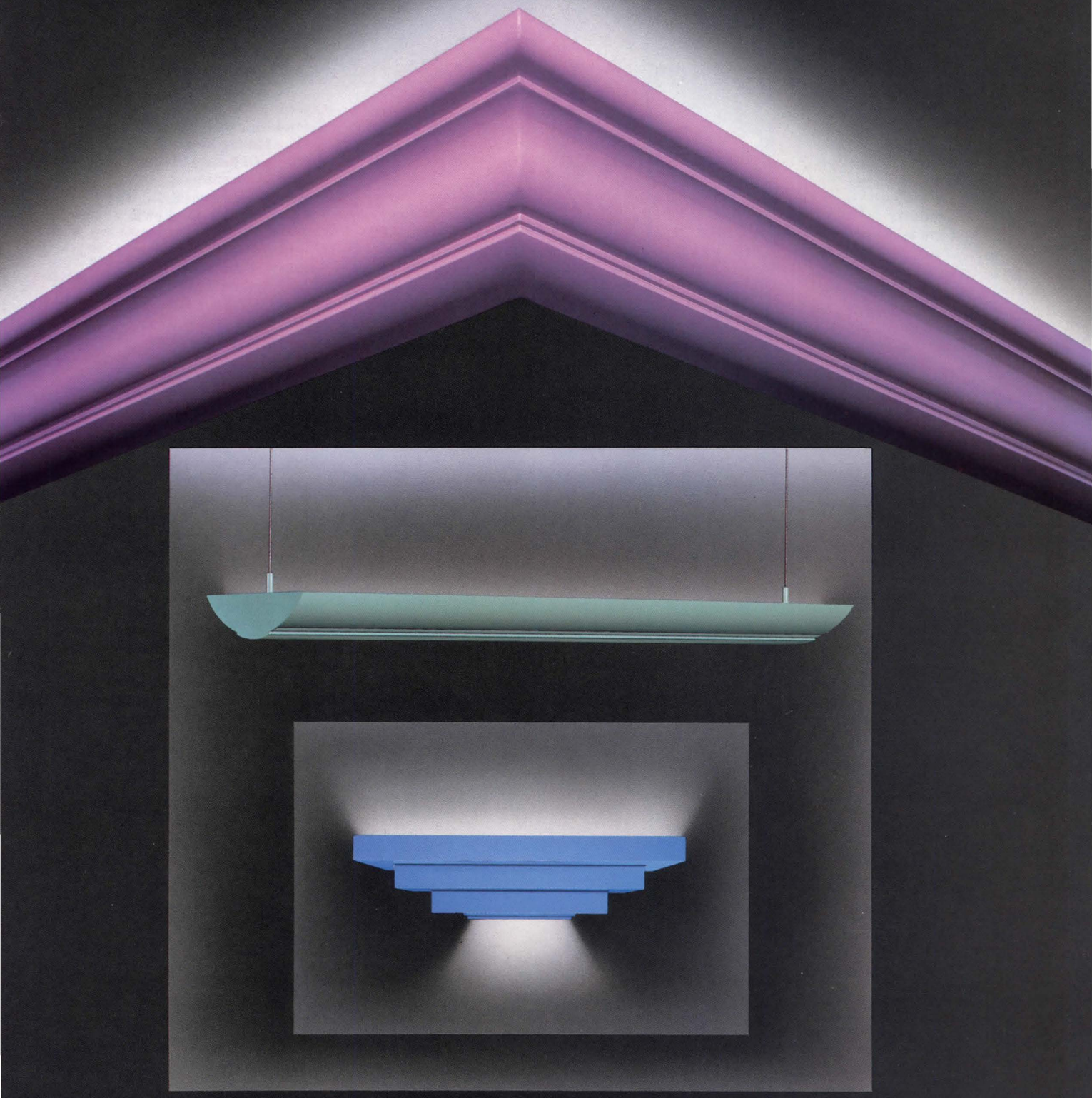
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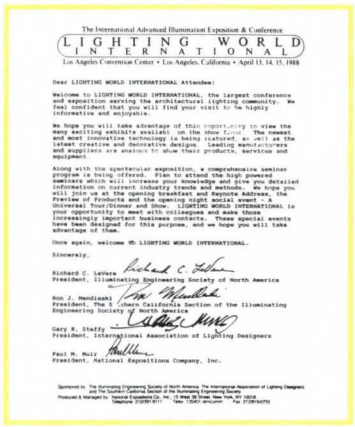
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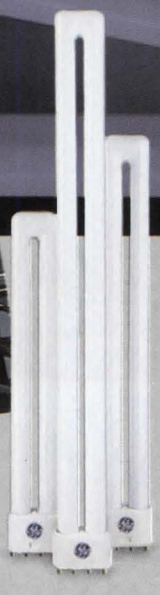
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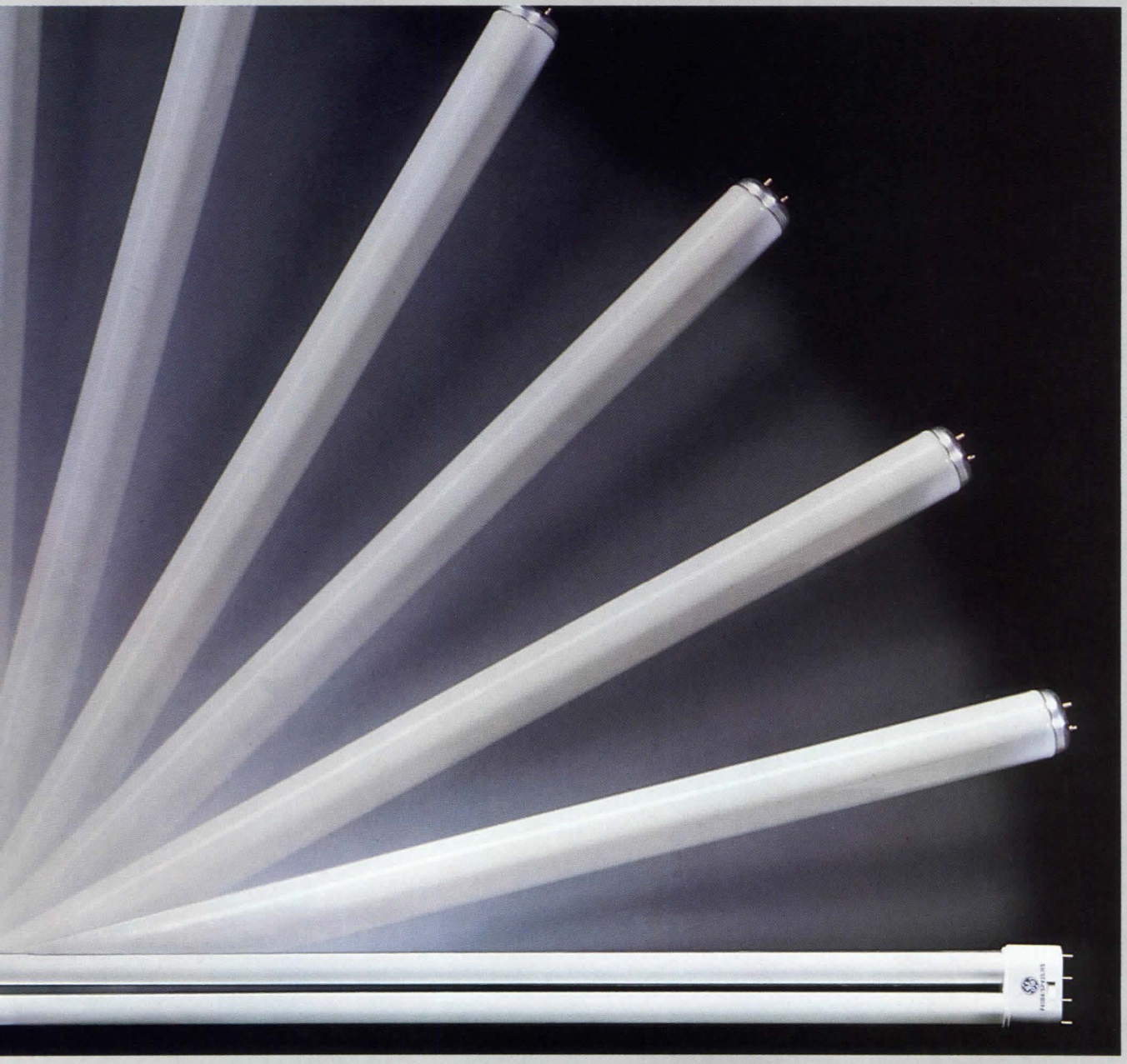


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Schedule of Events



Arthur Erickson



Gary R. Steffy



Dr. Mark S. Rea



Wednesday, April 13

The Opening Breakfast: A Lighting World Tradition*
8:30 A.M.–10:30 A.M.

Keynote Speaker: Arthur Erickson

Lighting World International will inaugurate its sixth show with an Opening Breakfast for designers, specifiers, buyers, and manufacturers interested in the special world of architectural lighting theory and practice. The internationally-known architect Arthur Erickson will open the show with a thoughtful look at the role of light and lighting in architecture.

According to Mr. Erickson, "It is only through light that we perceive architecture. Other senses may enhance that perception, but without light the experience does not exist at all. Daylight gives lucid substance to the form, space, color, texture of buildings. At night the same forms are insubstantial, like a photo negative of the daytime structure. The very nature of night illumination makes these forms curiously unreal, mysterious—the counter of what they appear by day. The art of lighting then goes far beyond the need to illuminate the path or augment our vision—it can reveal a new and arresting presence not previously evident. The potential of lighting lies in the exploration of this alternate architectural landscape."

In his design practice, Arthur Erickson is known for a diversity of interesting projects which lend themselves to innovative and creative solutions. Among his current projects are the 11-acre California Plaza in downtown Los Angeles, the San Diego Convention Center, and the Canadian Chancery in Washington, D.C.

Throughout his distinguished career, **Arthur Erickson** has received many honors and awards, including the Royal Institute of Canada's Gold Medal, the Grande Medaille d'Or from France's Academie d'Architecture, and the Gold Medal in 1986 from the American Institute of Architects. He is a member of the Royal Institute of British Architects and an Honorary Fellow of the AIA.

Preview of Products—The Latest in Lighting Technology
1:00 P.M.–2:30 P.M.

Presentation: James R. Benya and Dr. Ian Lewin

The "best and the brightest" in the world of new lighting products and control systems will be unveiled at this special Lighting World session. In one 90-minute program, specifiers and buyers will have the opportunity to survey the state-of-the-art of lighting technology as Mr. Benya and Dr. Lewin present the latest products and systems.

The fixtures and controls featured have been selected by a panel from the International Association of Lighting Designers and the Illuminating Engineering Society of North America. The products have been drawn from those exhibited at the show: commercial/industrial fixtures, programmable lighting control systems, light sources, occupancy-sensing technology, switching and dimming systems, outdoor walkway and roadway equipment, floodlighting, security lighting, fiber optic developments, retrofit and conversion fixtures, theatrical and special effects, track lighting, task lighting, landscape lighting, and decorative fixtures.

Creating Subjective Responses with Lighting: A Debate
3:00 P.M.–4:00 P.M.
Session 101

Speakers: Dr. Mark S. Rea and Gary R. Steffy

Within the design community, it is a given that spaces should seem pleasant and spacious, engendering a feeling of relaxation among occupants. While lighting plays a major role in creating these subjective impressions, opinion is divided as to which lighting techniques create which specific impressions.

A lighting designer and a researcher will present contrasting viewpoints on the psychological aspects of lighting in design practice. Noting the designer's need to make quick and reasonable decisions using available information, Gary Steffy will show how data from both research and experience can be used in design practice. Dr. Mark Rea will counter with the potential weaknesses of many prevailing design assumptions, addressing the doubts which prompt continuing research. This session will begin with a survey of the audience's subjective responses to several design solutions. Preliminary results will be announced at the end of the program, with a followup summary to be published at a later date.

Gary Steffy is president of Gary Steffy Lighting Design, Inc., based in Ann Arbor, Mich., that has designed a variety of commercial and institutional projects. He is the current president of the International Association of Lighting Designers and a sustaining member of the Illuminating Engineering Society of North America. **Mark S. Rea, Ph.D.** is head of the lighting group of the Institute for Research in Construction of the National Research Council Canada, Ottawa. He received his doctorate in sensory biophysics and serves on the IESNA Psychological Aspects Committee.

Airfield Lighting: A Navigational Aid for Pilots
3:00 P.M.–4:00 P.M.
Session 102

Speaker: Fred Gronberg

Thousands of airfields in the United States have outdated lighting systems or no lighting at all. Airfields—where planes approach, land and taxi—represent specialized lighting situa-

* *For information on taped sessions, please see page 34LW.*

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LIGHTING WORLD INTERNATIONAL: Booth #1249

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Exhibitor's Index

See Exhibitor List, page 38LW for alphabetical listing and floor plan.

Booth 1025
AFC/A Northek Co.
Flexible Wiring Division
79 Cove St.
New Bedford, MA 02744
617/993-1781
Relocatable plug-in wiring system for branch circuit lighting, power, and underfloor power distribution.

Booth 1812
AFL Lighting
Viktringerplatz5
A-9073 Viktring, Austria
0463/28 16 43
Low voltage products—12 v. for trucks, recessed spots, hanging lamps and table lamps.

Booth 1927
A.L.P. Lighting and Ceiling Products, Inc.
5458 N. Mason Ave.
Chicago, IL 60630
312/774-9550
Parabolic and decorative lighting louvers, lenses, CRT parabolic louver assemblies and Kwik-change™ retrofit assemblies.

Booth 1140
Aamsco Group
15-17 Brook St.
Jersey City, NJ 07302
201/434-0722
Specialty lamps and a new line of lighting fixtures using halogen and metal halide lamps.

Booth 915
Abolite Lighting, Inc.
P.O. Box 180
West Lafayette, OH 43845
614/545-6374
Industrial and garage HID luminaires, commercial direct and indirect HID, dock lights, and decorative RLM incandescent reflectors.

Booth 1918
Advance Transformer Co.
2950 N. Western Ave.
Chicago, IL 60618
312/267-8100
Ballasts for fluorescent, mercury, metal halide, and high- and low-pressure sodium lighting systems. New electronic ballasts will be featured.

Booth 1001
Alkco
11500 Melrose Ave.
Franklin Park, IL 60131
312/451-0700
Recessed-Trak™ concealed accent lighting, Lumanizers™ HQI spot, flood, wallwash system, Little Inch™ undercabinet lighting, Lincandescents™ Linear Incandescents, Wallscapes™, and more.

Booth 1076
Aluminum Coil Anodizing Corp.
501 E. Lake St.
Streamwood, IL 60107
312/837-4000
Continuous Coil Anodizing featuring Coilzak®, Everbrite®, Ultrabrite® Electrobrightening, and diffuse lighting sheet in coil and sheet form.

Booth 211
American Crafts, Inc.
426 S. Main St.
Coolidge, AZ 85228
602/723-4157
Handcrafted ceramic sconces, wall lights, pendants, swags, table lamps, torchieres, and ceiling fans with light kits in a variety of colors and finishes.

Booth 1349
American Lantern
Highway 67 North
Newport, AR 72112
501/523-9861
Incandescent and fluorescent decorative and functional styles designed for residential and light commercial applications.

Booth 1545
American Louver Co.
7700 N. Austin Ave.
Skokie, IL 60077
312/470-3300
Louvers for fluorescent lighting.

Booth 617
American Reflector Technology International, Inc.
16783 Beach Blvd.
Huntington Beach, CA 92647
714/968-7227
Custom-designed reflectors, low voltage lighting, and lighting controls. Service package including retrofit lighting finance, energy audits, installation, and maintenance.

Booth 1829
Amerlux, Inc.
23 Daniel Rd.
Fairfield, NJ 07006
201/882-5010
Architectural-grade lighting systems, including linear fluorescents in round, square, oval, and rectangular shapes; display lighting; downlighting; and wall sconces.

Booth 1919
Ameron Pole Products Division
1020 B St., P.O. Box 755
Fillmore, CA 93015
805/524-0223
Showing prestressed concrete and tapered steel lighting poles, tapered mast arm traffic poles, and modular traffic control systems.

Booth 1125
Angelo Brothers Co.
10981 Decatur Rd.
Philadelphia, PA 19154
215/632-9600
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Booth 1814
Appleton Lamplighter Division of Aries Fabrication Corp.
1073 S. Van Dyke Rd.
Appleton, WI 54915
414/739-9001
Custom designed hand-crafted lighting products fabricated to individual requirements utilizing all current lighting sources and numerous materials.



Booth 1733
Architectural Lighting Magazine
195 Main St.
Metuchen, NJ 08840
201/549-3000
A practical magazine for architects, landscape architects, engineers, and designers who work on lighting projects in commercial, industrial, and institutional settings.

Booth 1002
Architectural Lighting Systems, Inc.
30 Sherwood Dr.
Taunton, MA 02780
617/823-8277
A coordinated system of fluorescent architectural pendant and wall luminaires including indirect, direct, sconce, cove and valance in four decorative styles.

Booth 718
Architectural Record
1221 Avenue of the Americas
New York, NY 10020
212/512-2858
Edited for architects and engineers engaged in building design and product specification.

Booth 1154
Arte De Mexico
5356 Riverton Ave.
North Hollywood, CA 91601
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Custom hand-forged Spanish and Mediterranean style iron chandeliers and wall mount fixtures, UL approved. Featuring naturally shed deer antler chandeliers.

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Artemide Inc.
1980 New Highway
Farmingdale, NY 11735
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Booth 1504
Artemide Litech, Inc.
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Culver City, CA 90230
213/835-2465
Commercial and industrial modular lighting systems, spotlamps, and outdoor lighting of Italian design and largely U.S. manufacture.

Booth 1058
Artup Lighting
3000 Shannon
Santa Ana, CA 92704
714/850-1966
High-tech, Euro-style, contemporary lighting for office/residential applications. The collection consists of wall sconces, ceiling fixtures, floor/table lamps, and task lamps.

Booth 1744
Atelier International Lighting
30–20 Thomson Ave.
Long Island City, NY 11101
718/392-0300
The Atelier International Lighting collection consists of decorative lighting fixtures suitable for contract applications.

Booth 1611
Louis Baldinger & Sons, Inc.
19–02 Steinway St.
Astoria, NY 11105
718/204-5700
Displaying the new collection of fixtures designed by Michael Graves and William Pedersen and Italian imported fixtures as well as their custom decorative line.

Booth 740
Barovier & Toso SRL
Fondamenta Dei Vetrai 28
Murano-Venezia, Italy
41-739049
Hand-made artistic Venetian glass, factory-decorative lighting, custom and architectural illumination, and glass accessories will be shown.

Booth 619
Barrie Lighting
163 Wilwood Ave.
Newark, OH 43055
614/345-1353
High pressure sodium fixtures, PL 13 fixtures, and 12-volt landscape fixtures.

Booth 1339
Basic Concept—A Genlyte Company
1425 Rockwell Ave.
Cleveland, OH 44114
216/696-0424
Displaying the newest styles in portable lighting.

Booth 1541
Bega
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Santa Barbara, CA 93150
805/565-1575
Outdoor oriented architectural lighting.

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Beverly Hills Fan Co.
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North Hollywood, CA 91605
818/982-1002
Architecturally designed ceiling fans and lights "designed by Ron Rezek."

Booth 813
Bieber Lighting Corp.
970 W. Manchester Blvd.
Inglewood, CA 90301
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Manufacturer of lighting fixtures and poles for tennis courts; commercial, industrial, decorative, costume, and shopping centers and auto dealerships.

Booth 1262
The Bodine Co.
236 Mt. Pleasant Rd.
Collierville, TN 38017
901/853-7211
Emergency lighting system for HID lamps and fluorescent emergency ballasts including units for twin-tube compacts and exit lamps, as well as energy management system.

Booth 1052
Boyd Lighting Co.
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San Francisco, CA 94103
415/431-4300

Booth 946
Brass Reproductions
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5475 Northwest Highway
Chicago, IL 60630
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Electrical components, residential fluorescent lighting housings, acrylic structural diffusers, lampholders and outlets, ballasts, steel bodies and strips, fluorescent starters, lite guards, power supply cords, and fuseholders.

Booth 1146
Brownlee Lighting
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Orlando, FL 32804
305/422-1370
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Booth 604
Bruel & Kjaer Instruments, Inc.
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Marlboro, MA 01752
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Buhl Electric Co.
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Fairlawn, NJ 07410
201/423-2800
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1350 E. Touhy Ave.
P.O. Box 5080
Des Plaines, IL 60017-5080
312/635-8800
The magazine of technology and business for the building team.

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CEE Magazine/Intertec Publishing Corp.
707 Westchester Ave.
White Plains, NY 10604
914/949-8500
A monthly magazine serving the electrical construction industry with new product information and how-to articles.

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Capitol Lighting Products
159 Alexander St.
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Capri Lighting
6430 E. Slauson Ave.
Los Angeles, CA 90040
213/726-1800
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Booth 710
Celestial Products
5400 Cahuenga Blvd.
North Hollywood, CA 91601
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Booth 1546
C.W. Cole & Company, Inc.
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South El Monte, CA 91733
213/283-6688
Custom and specialty architectural lighting fixtures, including lightrail illuminated handrails, exit signs, steplites, sconces, and chandeliers.

Booth 2100
Contract Magazine
1515 Broadway
New York, NY 10036
212/869-1300
Current issues and subscription information will be available.

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Brentwood, NY 11717
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Crystalite
18193 S. Pioneer Blvd.
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Artesia, CA 90701
213/402-6048
24-karat gold plated European crystal chandeliers for residential and contract applications.

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D.J.G. Factory of Electrical Supplies
West Industrial Zone, P.O.B 285
Beth Shemesh 99000
Israel
Manufacturer of plastic lighting fixtures and parts for indoor, outdoor, residential and commercial use. Incandescent, energy saving lamps.



Booth 706
Dabbco, Inc.
5983 Smithway St.
Commerce, CA 90040
213/722-0080
Manufacturer of energy-efficient lighting for residential and commercial use as well as custom designs to meet all interior, exterior, recessed, and landscape lighting.

Booth 1211
Day-Brite McPhilben Omega
1015 S. Green St.
Tupelo, MS 38802
601/842-7212
Fluorescent, HID, outdoor, architectural down lighting, track, architectural outdoor, exits, and flexible wiring.

Booth 1149
Dazor Manufacturing Corp.
4483 Duncan Ave.
St. Louis, MO 63110
314/652-2400
Portable, adjustable-arm task lighting.

Booth 711
Designplan International
Wealdstone Rd.
Kimpton Industrial Estate
Sutton SM3 9RW Surrey
England
1-644 7070
Vandal-resistant, weatherproof, and special purpose lighting fixtures, including fluorescent, discharge and energy saving, for public areas, prisons, walkways, sports halls, car parks.

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Hackensack, NJ 07601
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D'Lights
5333 W. Windsor Rd.
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203/426-8011
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253 Norfolk St.
Cambridge, MA 02139
617/661-4404
Emergency lighting equipment.

Booth 1901
Dynasty Classics Corp.
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Compton, CA 90220
213/608-7344
Track, vanity, outdoor, recessed, and decorative lighting. Chandeliers and ceiling fans.

Booth 611
ETL Testing Laboratories, Inc.
Industrial Park
Cortland, NY 13045
607/753-6711
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30–40 Northfield Ave.
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Prime manufacturer of UL-listed retrofit ballast/adapters for compact fluorescent, quartz halogen, and high pressure sodium lamps.

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3810 Wilshire Blvd., #307
Los Angeles, CA 90010
213/382-3101
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Electrical Construction & Maintenance
1221 Avenue of the Americas
New York, NY 10020
212/512-6067
A monthly publication for electrical contractors, consultants, and plant specialists who design, install, and maintain electrical systems.

Booth 845
The Electrical Distributor Magazine
28 Cross St.
Norwalk, CT 06851
203/846-6800
Official publication of the National Association of Electrical Distributors.

Booth 628
Electrical News
P.O. Box 3807
Arcadia, CA 91006
818/446-8652
Monthly trade publication serving the electrical and lighting industries of California, Arizona, and Nevada.

Booth 714
Electrical Wholesaling
1221 Avenue of the Americas
New York, NY 10020
212/512-6067
Monthly publication for owners, managers, and sales professionals who stock and sell electrical products.

Booth 1740
Electrix, Inc.
45 Spring St.
New Haven, CT 06519
203/776-5577
Halogen task lighting, track lighting, torchieres, and sconces.

Booth 1313
Electro Controls, Inc.
2975 South 300 West
Salt Lake City, UT 84115
801/487-6111
State-of-the-art architectural theatrical, and energy management, dimming and control for incandescent, fluorescent, low voltage, cold cathode, and H.I.D. sources.

Booth 1917
Electro-Elf
10011 Olive St.
Temple City, CA 91780
818/286-5002
Energy-saving fluorescent landscape fixtures.

Booth 1348
Electronic Ballast Technology, Inc. (EBT, Inc.)
2522 W. 237th St.
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Architectural and high-performance lighting systems. Controls from single station to computer-based, multi-preset operation. Dimming for fluorescent, incandescent, low voltage, quartz, neon, cold cathode, and HID.

Booth 1448
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633 San Juan Ave.
Stockton, CA 95203
209/466-0511
Manufacturer of commercial and industrial outdoor HID lighting. Energy-efficient advanced sharp cut-off luminaires, Envirolight II, Carmel 10 will be shown.

Booth 1805
Emco Environmental Lighting
7300 50th St., P.O. Box 1640
Milan, IL 61264
Specification-grade outdoor lighting fixtures for walkway, roadway, and area lighting, functional and decorative, state-of-the-art light distribution.

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Emergi-Lite
Emerg Lane, P.O. Box 548
Westbrook, CT 06498
203/399-7991
Featuring emergency lighting and inverter systems.

Booth 641
Enercon Data Corp.
7464 W. 78th St.
Minneapolis, MN 55435
612/829-1900
Automatic and manual lighting control systems with microprocessor-based building automation controllers and the Transformer Relay for controller-based circuit interface.

Booth 613
Energy Technology
2080 Stonington Ave.
Hoffman Estates, IL 60195
312/885-4888
System 2000 saves 30 to 50 percent of your lighting energy costs without expensive installations.

Booth 1144
Energy User News
7 E. 12th St.
New York, NY 10003
212/741-4425
Weekly newspaper edited for the executive in commercial and industrial operations who is in charge of managing, controlling, and purchasing energy.

Booth 657
Engineered Lighting Products
10768 Lower Azusa Rd.
El Monte, CA 91731
818/579-0943
Rectangular recessed wall washers, using compact fluorescent lamps, that provide even, unscalloped illumination. Four-inch depth allows for wall recessing.

Booth 1030
Exciting Lighting Corp.
110 Bicounty Blvd., Suite 120
Tech 110
Farmingdale, NY 11735
516/752-1411
Multi-channel controllers with dimmers for low-voltage lighting, strobes, and special effects.

Booth 1544
Exide Electronics/Lightguard Division
3201 Spring Forest Rd.
Raleigh, NC 27604
919/872-3020
Emergency lighting unit equipment and new UPS type lighting-inverter.

Booth 2100
Facilities Design and Management
1515 Broadway
New York, NY 10036
212/869-1300
Current issues and subscription information will be available.

Booth 815
Fiberstars, Inc.
47456 Fremont Blvd.
Fremont, CA 94538
415/490-0719
A unique new fiber optic lighting system—a flexible ribbon of light which adapts to creative indoor and outdoor applications.

Booth 1533
Flos USA, Inc.
200 McKay Rd.
Huntington Station, NY 11746
516/549-2746
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Booth 1419
Fredrick Ramond, Inc.
16121 S. Carmenita Rd.
Cerritos, CA 90701
213/926-1361
Designer line of decorative lighting fixtures for use in architectural, commercial, and residential applications.

Booth 1016
GE Lighting Controls
225 Service Ave.
Warwick, RI 02886
401/886-6200
Relay-based lighting controls products and systems including integrated lighting control for intelligent buildings, low-cost lighting automation panels, and low-voltage remote control components.

Booth 1711
GTE Sylvania Lighting Equipment
21 Penn St.
Fall River, MA 02724
617/678-3911
Low wattage H.I.G. performance HID lighting fixtures.

Booth 1625
GTE Sylvania Lighting Fixtures
100 Endicott St.
Danvers, MA 01923
617/777-1900
State-of-the-art display of incandescent Capsylite, compact and designer fluorescent, and high intensity discharge lamps.

Booth 713
Gammalux Systems
419 W. Maple Ave.
Monrovia, CA 91016
818/358-5996
Compact fluorescent and HID fixtures using state-of-the-art lamps and ballasts for interior and exterior applications.



Booth 1159
Ganeko, Inc.
P.O. Box 200
Polarisweg z/n
Curacao, Netherlands Antilles
599-9/616755
New electronic ballast system. Economic night lights with automatic on/off switching. Prize-winning energy-saving lamp designs.

Booth 1205
General Electric Co.
Nela Park
Cleveland, OH 44112
216/266-2187
Fluorescent, incandescent, and HID lamps for the commercial and industrial market.

Booth 1235
Genlyte
100 Lighting Way
Secaucus, NJ 07094
201/864-3000
Fluorescent, incandescent, and HID architectural lighting. Incandescent and fluorescent decorative lighting. HID industrial lighting. Incandescent and fluorescent outdoor lighting.

Booth 1833
Globe Illumination Co.
1515 W. 178th St.
Gardena, CA 90248
213/321-9000
Recessed fluorescent parabolic luminaires "Ultrapar," "Tri-Par," "Mini-Par" plus other energy-efficient systems, including high pressure sodium and metal halide ultralight garage and low bay units.

Booth 712
Great American Lamp, Inc.
8636 Graham Ave.
Los Angeles, CA 90002
213/589-5571
Sealed-beam metal halide, mercury vapor, and incandescent lamps. Bulbs, floodlights. Package "Do it Yourself" kits complete with engineering.

Booth 1607
Greenlee Landscape Lighting
1220 Champion Circle #116
Carrollton, TX 75006
214/484-1133
Bullet fixtures remain the heart of a growing product line of landscape lighting fixtures.

Booth 1417
Guardian Light Co.
5125 W. Lake St.
Chicago, IL 60644
312/378-2200
Competitively priced and energy-efficient outdoor area lighting, security lighting, floodlighting, and poles for parking lots and automobile dealerships.

Booth 1101
Guth Lighting Solutions
2615 Washington
St. Louis, MO 63103
314/533-3200
Compact metal halide S.P.I.R.T. indirect plus Lighting Solutions by application. Indirect, accent, gasketed, outdoor, industrial, energy saving ambient.

Booth 1434
Hadco Division/Craftlite, Inc.
100 Craftway
Littletown, PA 17340
717/359-5145
Outdoor lighting fixtures lighting in incandescent, in-ground and HID sources.

Booth 1013/1113
Halo/Division Cooper Lighting
400 Busse Rd.
Elk Grove Village, IL 60007
312/956-8400
Halo Power Trac, Track Lighting, Halo Surface Lighting Sconces and Pendants.

Booth 1013/1113
Halo-Sure Lites/Division Cooper Lighting
400 Busse Road
Elk Grove Village, IL 60007
312/956-8400
Exit and Emergency Lighting.

Booth 1949
High-Lites, Inc.
2142 Thomaston Ave.
Waterbury, CT 06704
203/575-2044
Decorative, industrial, commercial battery-operated emergency lighting and exit signs.

Booth 1825
Hi-Tech/Lighting Technologies
102 Pebble Beach Dr.
Roanoke, TX 76262
817/430-3351
Low-voltage track and recessed lighting fixtures featuring an advanced design cooling system that maximizes lamplife.

Booth 1035
Holophane Division/Manville
214 Oakwood Ave.
Newark, OH 43055
614/345-9631
Indoor and outdoor commercial and industrial lighting fixtures, poles, and accessories.

Booth 310
Home Lighting & Accessories Magazine/Doctorow Communications
1115 Clifton Ave.
Clifton, NJ 07013
201/779-1600
Since 1923, the magazine of the residential lighting industry, for retailers, electrical distributors, architects, specifiers, manufacturers, and lighting professionals.

Booth 1940
Hybrinetics, Inc.
225 Sutton Place
Santa Rosa, CA 95407
707/585-0333
Fluorescent and incandescent light dimmers: touch, slide, toggle, rotary, inline, socket, and table-top models. Photo-electric lighting controls.

Booth 906
Hydrel
12881 Bradley Ave.
Sylmar, CA 91342
818/362-9465
Architectural and landscape lighting that includes fountain and underwater fixtures.

Booth 1425
IPI (Innovative Products for Interiors)
30–20 Thomson Ave.
Long Island City, NY 11101
718/482-7440
Featuring Expresslight, the quick-ship program that offers the largest selection of award-winning international design lighting products available in the US.

Booth 624
Illumilite, Inc.
6920 Hayvenhurst #208
Van Nuys, CA 91406
818/904-9861
Designers and manufacturers of low-voltage tube lighting, chandeliers, light panels, light curtains, and custom works of light. Innovative designs catering to the commercial or residential user.

Booth 2102
Illuminating Engineering Society of North America
345 E. 47th St.
New York, NY 10017
212/705-7926
A cosponsor of Lighting World International, IES is a technical society whose purpose is to advance the art, science, and practice of illumination. IES publishes *Lighting Design & Application* magazine and the *Journal of IES*. Other publications include technical, design, and the *IES Lighting Handbook*.

Booth 1341
Illumination Concepts & Engineering
500 Callahan Rd.
North Kingstown, RI 02852
401/295-2533
Architectural linear fluorescent fixtures for commercial applications. Round, square, and low-profile shapes provide a wide selection of lighting distributions.

Booth 1811
Illuminotecnica
Via Luchino Del Maino 12
20146 Milan, Italy
International lighting magazine.

Booth 1335
Imperial Bronzelite
500 Wonderworld Dr.
San Marcos, TX 78666
512/392-5821
Architectural fountain systems, landscape lighting, and underwater lighting.

Booth 1525
Indy Lighting, Inc.
8431 Castlewood Dr.
Indianapolis, IN 46250
317/849-1233
Full line manufacturer of incandescent, compact fluorescent, HID downlighting, track and track fixtures.

Booth 1606
Inlite Corp.
939 Grayson St.
Berkeley, CA 94710
415/849-1067 (in Calif.)
800/346-5932
Commercial duo-circuit, low-voltage and line-voltage track lighting.

Booth 808
Interior Design Magazine/ A Cahners Publication
249 W. 17th St.
New York, NY 10011
212/463-6665
The magazine for all concerned with the planning, design, specification, and purchase of interior furnishings and products for various contract/commercial and residential uses.

Booth 2104
International Association of Lighting Designers, Inc.
18 E. 16 St./Suite 208
New York, NY 10003
212/206-1281
IALD, a co-sponsor of Lighting World, is the professional association of the architectural lighting designer. Founded in 1969 in recognition of the importance of the role of light in architecture and interior design, IALD sponsors programs for both the established lighting designer and the student just entering the field. In addition to Lighting World, IALD administers a student intern program, an awards program, an educational program, and is involved in energy conservation standards and research.

Booth 1806
International Lighting Review
P.O. Box 721
5600 As Eindhoven
3140755252
The Netherlands
ILR, a quarterly publication, reviews lighting world wide and in all applications.

Booth 950
Isolite Corp.
110 W. Lancaster Ave.
Wayne, PA 19087
215/688-2800
Manufactures self-luminating exit signs that require no electricity or batteries and that stay illuminated at all times.

Booth 742
JWP Infracon, Inc.
4 Sperry Rd.
Fairfield, NJ 07006
201/808-9191
New #628a recessed ceiling occupancy sensor and #400 wide-view sensor—both are shielded against radio frequency interference. The company also offers a new #500 passive infrared wall switch.

Booth 1845
Jensen Electric Co.
140 Jensen St.
Reno, NV 89502
702/322-3100
Low-voltage decorative lighting and controls.

Booth 1438
Joslyn Corp.
4000 E. 116th St.
Cleveland, OH 44105
216/271-6600
Lowering devices enable safe, easy, and economical servicing of lighting fixtures, fans, speakers, CTV cameras and other equipment whose installation heights prohibit direct access for servicing.

Booth 1706
Justice Design Group, Inc.
3457 S. LaCienega Blvd.
Los Angeles, CA 90016
213/836-9575
Innovative ceramic wall sconces and pendant fixtures, custom designs and prototypes for residential and contract lighting.

Booth 1424
KLP Keene Lighting Products
41 Industrial Way
Wilmington, MA 01887
617/657-7600
Parabolic lighting featuring more lumen output than today's 2′x4′ three-light parabolics. Introducing Paraplus at the show.

Booth 824
K-S-H, Inc.
10091 Manchester Rd.
St. Louis, MO 63122
314/966-3111
Specification-grade prismatic control lenses for fluorescent and HID fixtures.

Booth 840
KW Industries
909 Industrial Blvd.
Sugar Land, TX 77478
713/240-0909
Steel lighting and roadway standards.

Booth 737
Kenall Manufacturing Co.
4140 W. Victoria St.
Chicago, IL 60646
312/463-8500
On display will be new high-abuse area lighting fixtures, each incorporating the best in design and engineering technology for optional system strength.

Booth 1453
Kenro Light, Inc.
8687 Melrose Ave.
Los Angeles, CA 90069
213/659-6510
High end decorative lamps and fixtures for residential and commercial use including low-voltage MR-16 designs.

Booth 705
Kenyon Electrical Design Group
P.O. Box 717, 55 North St.
Enfield, CT 06082
203/763-3283
Various types of decorative globe lighting for outdoor or atrium use in residential and commercial applications.



Booth 924
Kim Lighting
16555 E. Gale Ave.
City of Industry, CA 91749
818/968-5666
Pole-mounted and low level luminaires will be featured.

Booth 914
King Luminaire Co., Inc./
Stress-Crete Ltd.
P.O. Box 7
840 Walker's Line
Burlington, ONT S7R 3X9
Canada
416/632-9301
Ornamental cast-iron and concrete poles and bollards are among the company's authentic but photometrically improved historic street lights.

Booth 1600
Kingston Industries Corp.
Kingston Way
White Lake, NY 12786
914/583-5000
Offers aluminum reflector sheet, parabolic louvers, aluminum and molded reflector assemblies with lampholders and fluorescent fixture retrofit and upgrade systems package.

Booth 1657
Koch + Lowy
21–24 39th Ave.
Long Island City, NY 11101
718/786-3520
A range of innovative lighting products incorporating incandescent, energy-efficient PL, and halogen bulbs.

Booth 930
Kohsun Industry, Inc.
2145 E. Sacramento St.
Los Angeles, CA 90021
213/627-9102
Product line includes solid brass chandeliers, porcelain chandeliers, and solid brass desk lamps.

Booth 1933
George Kovacs Lighting, Inc.
24 W. 40th St.
New York, NY 10018
212/944-9606
Contemporary lighting fixtures that include table torchieres, ceiling pendants, and wall sconce fixtures using incandescent and halogen lamps.

Booth 833
LMT
P.O. Box 85666 MB 116
San Diego, CA 92138
619/271-7474
Battery- and line-powered light-measuring instruments: Goniophotometers, luminance meters (spot photometers), illuminance meters, colormeters, and integrating spheres.

Booth 1607
LSI Lighting Systems, Inc.
4201 Malsbary Rd.
Cincinnati, OH 45242
513/793-3200
Outdoor area lighting for commercial and architectural applications.

Booth 1846
LTM Lighting Corp. of America
11646 Pendelton St.
Sun Valley, CA 91352
213/460-6166
UL listed track lighting theatrical Fresnels. The combination of a spherical reflector, a point source of light and a prismatic Fresnel lens creates a light of unsurpassed quality with a totally controllable spread.

Booth 1553
Lee Colortran
1015 Chestnut St.
Burbank, CA 91506
818/843-1200
Dimmers and controls for incandescent, fluorescent, low-voltage, and cold cathode sources as well as a specialized range of newly developed low-voltage and HID fixtures.

Booth 1547
Leecraft Manufacturing Co.
Inc.
21–02 44th Rd.
Long Island City, NY 11101
718/392-8800
Lampholders for new lighting products (halogen, incandescent, wedge base, compact, fluorescent, RSC HID). Reflectors, metal and plastic PAR assemblies, and LED and indicator lights.

Booth 1653
Lexalite International
P.O. Box 498
Charlevoix, MI 49720
616/547-6584
Custom and proprietary indoor and outdoor injection-molded lenses, refractors, reflectors and diffusers. Light assemblies and several optical illusions.

Booth 1613
Lightalarms Electronics Corp.
1170 Atlantic Ave.
Baldwin, NY 11510
516/379-1000
Emergency lighting equipment including decorative and industrial battery-powered units, remote fixtures, exit signs, fluorescent inverter ballasts, and AC standby systems.

Booth 1529
The Lighting Corporation
1962 No. Clybourn Ave.
Chicago, IL 60614
312/281-1962
Manufacturers of a complete line of specular silver film fluorescent fixtures anchored by a patented 2′x4′ two-light, 40-watt recessed 90 plus fixture.

Booth 828
Lighting Dimensions Magazine
135 Fifth Ave.
New York, NY 10010-7193
212/677-5997
Industry publication for lighting designers, consultants, specifiers, and buyers working in the design, development, and specification of architectural, commercial, industrial, and entertainment lighting.

Booth 618
Lighting Methods, Inc.
1099 Jay St.
Rochester, NY 14611
716/328-1020
Complete line of lighting controls for theatrical, architectural, television, and film applications. Products include analog and digital dimmers with manual or computer memory control.

Booth 1641
Lighting Services, Inc.
Industrial Park
Route 9W
Stony Point, NY 10980
914/942-2800
Specification-grade track, accent, and display lighting systems. UL-listed, USA manufactured.

Booth 1024
Lighting Technologies
3060 Walnut St., Suite 209
Boulder, CO 80301
303/449-5791
Lighting applications software (Lumen-Micro, Lumen-Point, Lumen$), color graphics capabilities, three-dimensional luminaire design, and analysis program called FIELD (Finite Element Luminaire Design).

Booth 847
Lightline Ltd.
1524 S. Peoria St.
Chicago, IL 60608
312/421-7733
Contemporary table and floor lamps will be exhibited along with low-voltage lighting fixtures.

Booth 1009
Lightning Bug, Ltd.
1721 W. 170th St.
Hazel Crest, IL 60429
312/335-1063
Architectural fixtures and lamps featuring exclusive and innovative designs in incandescent, fluorescent, PL and halogen, TRE.C. Luce, Prisma, Solziluce & Biffi.

Booth 1225
Lightolier
100 Lighting Way
Secaucus, NJ 07094
201/864-3000
A complete line of lighting fixtures featuring decorative alabaster and faux-stone, parabolic and indirect fluorescents, low-voltage track, energy-efficient and low-voltage downlights, plus a complete line of dimming controls, featuring Scenist and Lytemode, slide dimmers and infrared remote control.

Booth 1804
Lightron of Cornwall, Inc.
65 River Rd.
New Windsor, NY 12550
914/562-5500
Tubular low-voltage and fluorescent lighting systems.

Booth 807
Lightway Industries
25345 Avenue Stanford
Unit 213
Valencia, CA 91355
805/257-0286
Low-wattage, decorative fluorescent fixtures and retrofits.

Booth 640
Lightworks
3345 W. Hunting Park Ave.
Philadelphia, PA 19132
215/223-9200
Decorative lighting systems, light tubing, lighted ceiling panels, extruded aluminum strip lighting, and lighted handrails.

Booth 1441
L'Image
Town Industrial Park
St. Albans, VT 05478
802/527-0571
Internationally designed and manufactured in North America. Products include decorative, track, and linear lighting.

Booth 1028
Litecontrol Corp.
100 Hawks Ave.
P.O. Box 100
Hanson, MA 02341-0100
617/294-0100
Linear Products: Via, L.C.I., Sconces.

Booth 1616
Lite Cycle
P.O. Box 749
Lewisville, TX 75067
214/724-8286
Manufacturer of linear lighting products featuring the new LC 2120 120-volt cabinet/Under-Shelf light.

Booth 708
Lite Source, Inc.
9921 Hayward Way
S. El Monte, CA 91733
818/575-0986
Halogen desk/floor lamps, drafting task lamps, novelty, accent, brass, and picture lights.

Booth 919
LiteTouch, Inc.
220 W. 2855 South
Salt Lake City, UT 84115
801/466-9142
Low-voltage lighting control system specifically designed for switching and dimming light loads in custom residences.

Booth 819
Lite-tronics International
5317 W. 123rd St.
Alsip, IL 60658
312/371-4955
Incandescent, halogen, and miscellaneous lamps.

Booth 955
Littlite/CAE, Inc.
10087 Industrial Dr.
Hamburg, MI 48139
313/231-9373
Lamps and accessories, European slim-line flexible lamps in halogen and incandescent fixtures.

Booth 720
Lorin Industries Coil Anodizers Division, Inc.
1960 Roberts St.
Muskegon, MI 49441
616/722-1631
Pre-anodized aluminum reflectors include low iridescence and standard semispecular, and specular Coilzak™, Everbrite for retrofit and diffuse lamps. A wide variety of decorative color anodized finishes for interior applications.

Booth 600
Lucci Design Australia
366 St. Kilda, Victoria
3182 Australia
03/525 3266
Compact 12-volt lighting, plaster-of-paris wall sconces and table lamps, all suitable for residential and commercial use.

Booth 1319
Lucifer Lighting Co.
P.O. Box 370375
Miami, FL 33137
305/531-7978
Manufacturers and distributors of high-quality low-voltage incandescent and halogen linear light strips. The line also includes an incandescent tube system, low-voltage track, spotlights, and downlights.

Booth 850/851
Luma Lighting Industries, Inc.
2165 South Grand Avenue
Santa Ana, CA 92705
714/662-2871
Products include After-Sunset low-voltage landscape lighting and Starline low-voltage track lighting.

Booth 1013/1113
Lumark/Division Cooper Lighting
Highway 61 South
Vicksburg, MS 39180
601/638-1522
HID lighting products for indoor and outdoor commercial use.

Booth 1444
Lumatech Corp.
148 Grand Ave.
Oakland, CA 94612
415/444-8802
The Reflect-A-Star fluorescent floodlighting system replaces ordinary incandescents and operates on 85 percent less power while lasting up to 16 times longer.

Booth 1259
Lumec, Inc.
618 Boulevard Cure Boivin
Boisbriand, Quebec
J7G 2A7 Canada
514/430-7040
A collection of outdoor luminaires will be featured.



Booth 1018
Lumière Design & Manufacturing
31352 Via Colinas #103
Westlake Village, CA 91362
818/991-2211
Landscape and garden machined and die-cast outdoor lighting fixtures featuring integral and remote transformer applications.

Booth 1409
Lutron Electronics Co., Inc.
Box 205, Suter Rd.
Coopersburg, PA 18036
215/282-3800
A complete range of solid state dimmers, lighting controls, and energy-management products. Working displays of wallbox products such as Grafix Eye and Nova T and lighting systems ORION and PAESAR.

Booth 1013/1113
MWS/Division Cooper Lighting
Souther Field Rd.
Americus, GA 31709
912/924-8000
Highway 61 South
Vicksburg, MS 39180
601/638-1522
Modular wiring systems.

Booth 1712
Macro Electronics Corp.
4711 E. Fifth St.
Austin, TX 78702
512/385-6800
Lighting control and dimming systems for HID, metal halide, mercury vapor, high pressure sodium, fluorescent, Neon/cold cathode, and incandescent lighting sources, 2500 watts to 27,000 watts and up.

Booth 804
MagneTek, Inc. Triad
1124 E. Franklin St.
Huntington, IN 46750
219/356-7100
Electronic ballast for a range of lamps.

Booth 701
Marco Lighting
6100 Wilmington Ave.
Los Angeles, CA 90001
213/583-6551
Recessed downlights using incandescent, fluorescent, and HID lamp sources; tracklighting using 120-volt and low-voltage lamp sources; surface-mounted and exit fixtures.

Booth 1051
Martin Processing, Inc.–Industrial Products Group
P.O. Box 5068
Martinsville, VA 24115
703/629-1711
Limelight™ is a specular silver system designed for use in fluorescent optical reflectors to save energy, reduce lighting fixtures and enhance lighting conditions.

Booth 806
Max, Inc.
845 Malcolm Rd.
Burlingame, CA 94010
415/692-1810
Moving message signs, low-voltage lights, gem lights, lamp accessories, and Max chase rope lights.

Booth 1013/1113
McGraw-Edison/Division Cooper Lighting
Highway 61 South
Vicksburg, MS 39180
601/638-1522
Architectural outdoor HID lighting fixtures.

Booth 1211
mcPhilben/Omega Lighting
270 Long Island Expressway
Melville, NY 11747
516/293-8500
Manufacturer of precision die-cast, extruded aluminum outdoor fixtures, exit signs, and high-performance surface and recessed point source lighting.

Booth 1445
Mercury Lighting Products Co., Inc.
25 Brighton Ave.
Passaic, NJ 07055
201/779-5400
Commercial, industrial, residential, institutional, outdoor, and specialty fluorescent lighting fixtures. Quick ship on 95 percent of the line.

Booth 1519
Metalloxyd, Inc.
207 Greenwich Ave.
Stamford, CT 06902
203/324-7115
Louvers, reflectors, and other products made with anodized aluminum. Suspended ceiling by Mazzoleni-Licht.

Booth 1013/1113
Metalux/Division Cooper Lighting
Souther Field Rd.
Americus, GA 31709
912/924-8000
Metalux indoor fluorescent lighting and paralux parabolic lighting systems.

Booth 903
Microlamp, Inc.
1200 Clint Moore Rd.
Boca Raton, FL 33487
800/431-4956
Thorn Lighting's line of MR-11 and MR-16 tungsten halogen lamps. Also 150W and 70W 3000K Arcstream metal halide lamps.

Booth 1153
Mid-West Chandelier
100 Funston Rd.
Kansas City, KS 66115
913/281-1100
New generation of parabolic fixtures, wall brackets, and retrofit parabolic louver.

Booth 1729
Miroflector Co., Inc.
40 Bayview Ave.
Inwood, NY 11696
516/371-1111
Full line of fixtures for low-wattage HQI lamps. Recessed fixtures for quad tube compact fluorescents.

Booth 1148
Miyakawa America Corp.
408 E. Devon Ave., Suite 208
Elk Grove Village, IL 60014
312/640-0515
Reflector, sub-miniature, LED, fluorescent, and halogen lamps.

Booth 309
Multimicro Systems
987 Flamecrest Dr.
Stone Mountain, GA 30083
404/296-8966
Manufacturers of software for order entries, commission reconciliation, and sales analyses.

Booth 1649
Multiworld Inc.
103 W. Broad St., Suite 300
Falls Church, VA 22046
703/532-6050
A complete selection of contemporary European luminaires including suspension lamps, wall sconces, ceiling mounts, and floor and table fixtures.

Booth 1612
N.L. Corp.
14901 Broadway Ave.
Cleveland, OH 44137
216/662-2080
Incandescent and HID downlights, 20-, 30-, and 60-amp track systems, glitter strip-church lighting, and decorative custom lighting products.

Booth 1362
NRD/Penteco/Permex
2937 Alt Boulevard North
Grand Island, NY 14072
716/773-7634
Self-luminous tritium exit signs and explosion-proof signs.

Booth 1916
Neon Modular Systems/
Division Say It In Neon, Inc.
430 Hudson St.
New York, NY 10014
212/691-7977
Fully integrated system of durable neon lighting, including laser light sculptures™.

Booth 1501
Neo-Ray Products, Inc.
537 Johnson Ave.
Brooklyn, NY 11237
718/456-7400
Commercial fluorescent lighting fixtures; perimeter parabolic wall washers; extruded aluminum round, squares, tubes, and ovals; straight and narrow steel pendants; and direct/indirect lighting fixtures.

Booth 1101
Nessen Lamps, Inc.
36 Midland Ave.
Port Chester, NY
Our full line of traditional to high tech lighting marbles, solid brass picture lights, and the light tapestry will be among our collection.

Booth 1737
New Horizons Lighting, Inc.
3397 S.W. 42nd Ave.
Palm City, FL 34990
305/283-7772
Low-voltage tube lighting, tubelight chandeliers and curtains, firefly tree lighting, miniature spotlights, star panels, ceiling coffers, marquee lights, and architectural tubular fluorescent lighting systems.

Booth 757
Nightscaping
1705 E. Colton Ave.
Redlands, CA 92373
714/794-2121
Specification-grade 12 volt landscape and outdoor lighting fixtures, transformers, and systems.

Booth 1908
Noral Lighting, Inc.
P.O. Box 8912
Cleveland, OH 44136
216/273-1011
Cast-aluminum decorative outdoor lighting.

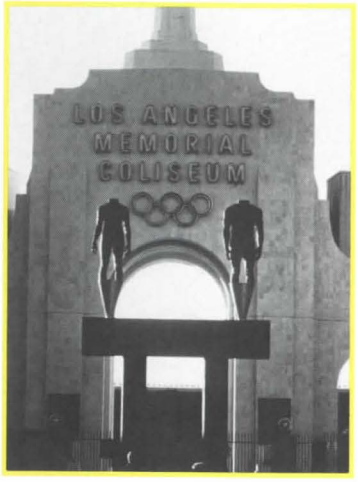
Booth 909
North Star Lighting, Inc.
2150 W. 16th St.
Broadview, IL 60153
312/681-4330
Metal halide area/sports-stadium fixtures featuring hot restrike capability. 210 Unilite and facet fixtures designed around Thorn Lighting's 20 miniature fluorescent lamp.

Booth 2011
Norton Industries, Inc.
2239 E. 14th St.
Cleveland, OH 44115
216/696-1047
Architectural wood and aluminum luminous ceiling systems, luminous skylight, coffers, baffles, grilles; decorative wood fluorescent fixtures, replacement louvers, lenses, and diffusers.

Booth 1008
Novitas, Inc.
1657 Euclid St.
Santa Monica, CA 90404
213/452-7890
Light-O-Matic turns off lights automatically. Used in classrooms, offices, conference rooms, storage areas, corridors, and warehouses. Also dims lights and controls HVAC, fans, etc.

Booth 835
Omega Energy
30997 Huntwood Ave., #103
Hayward, CA 94544
415/487-5980
Optical reflectors for fluorescent lighting, mirror-coated for maximum reflections and durability.

Booth 1141
OSRAM Corp.
Jeanne Dr.
P.O. Box 7062
Newburgh, NY 12550
914/564-6300
Dulux compact fluorescent, quartz halogen, HQI metal halide, Quicktronic EC6, high-pressure sodium standard metal halide, T8 fluorescent, high output.



Booth 918
Otteson Co.
Box 8939
Mountain Valley, CA 92728
714/962-4800
Supplies premium-quality Vianne French glass shades, Krisalux lead crystal shades, and custom bound beveled pieces.

Booth 1013/1113
P & K Poles/Division Cooper Lighting
Highway 61 South
Vicksburg, MS 39180
601/638-1522
Lighting standards for a variety of outdoor applications.

Booth 744
P.R.E. Lighting Co.
1705 W. 130 St., Unit D
Gardena, CA 90249
213/327-6887
All types of lighting fixtures manufactured by a consortium of 48 companies. Specialize in Trac lights, security lights, etc.

Booth 854
Paclight, Inc.
249 W. Allen Ave.
San Dimas, CA 91773
714/592-1941
Fluorescent and HID fixtures.



Booth 825
Panasonic Industrial Co.
Special Products Division
2 Panasonic Way
Secaucus, NJ 07094
201/348-7000
Light Capsules™ (screw-in fluorescent), Compact™ U-lamps, Color Correct-C Savers™ (energy-saving F40's), Circular fluorescents, Mercury and Halogen lamps.

Booth 609
Paragon Electric Co., Inc.
606 Parkway Blvd.
Two Rivers, WI 54241
414/793-1161
Electronic and electromechanical time controls for indoor/outdoor lighting, security lighting, and HVAC applications.

Booth 1741
Parke Industries, Inc.
457 W. Allen Ave., Suite 104
San Dimas, CA 91773
714/599-1204
Custom-designed optical reflectors including a new multisection reflector (deposition technology specular and advanced lighting components, ballasts, lamps, and controls).

Booth 1708
Perfeclite Co.
1457 E. 40th St.
Cleveland, OH 44125
216/391-8282
Incandescent and HID downlights, vandal-resistant units, directional signs, and incandescent and HID lens squares.

Booth 940
Performance International, Inc.
222 S.W. 27th St.
Ft. Lauderdale, FL 33315
305/467-7527
French-designed high-tech lighting (Tebong, Autographe, Lucien Gau).

Booth 1433
Philips Lighting Co.
200 Franklin Square Dr.
Somerset, NJ 08873
201/563-3000
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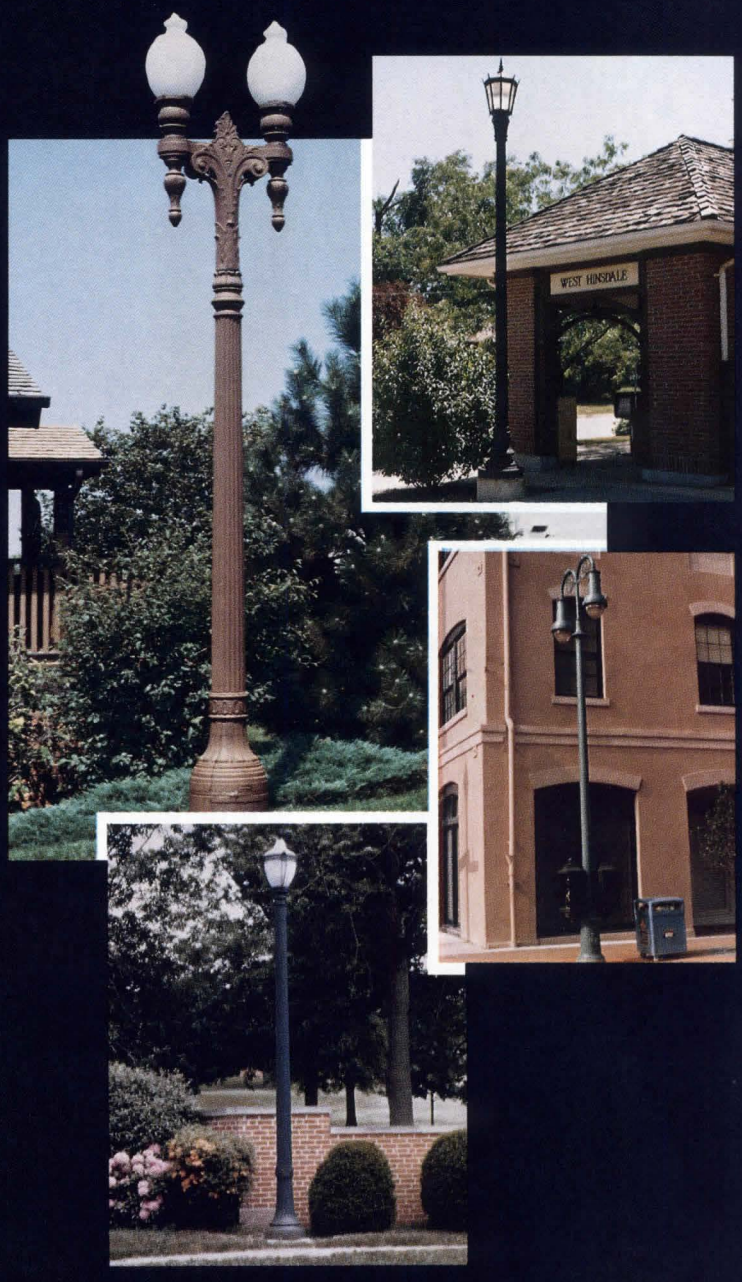
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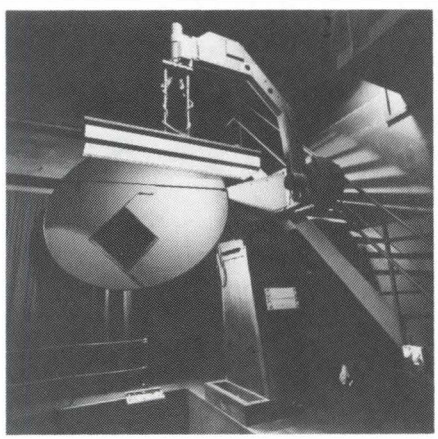
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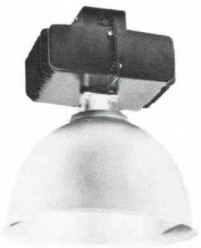
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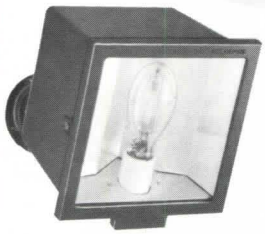
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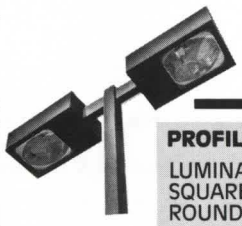


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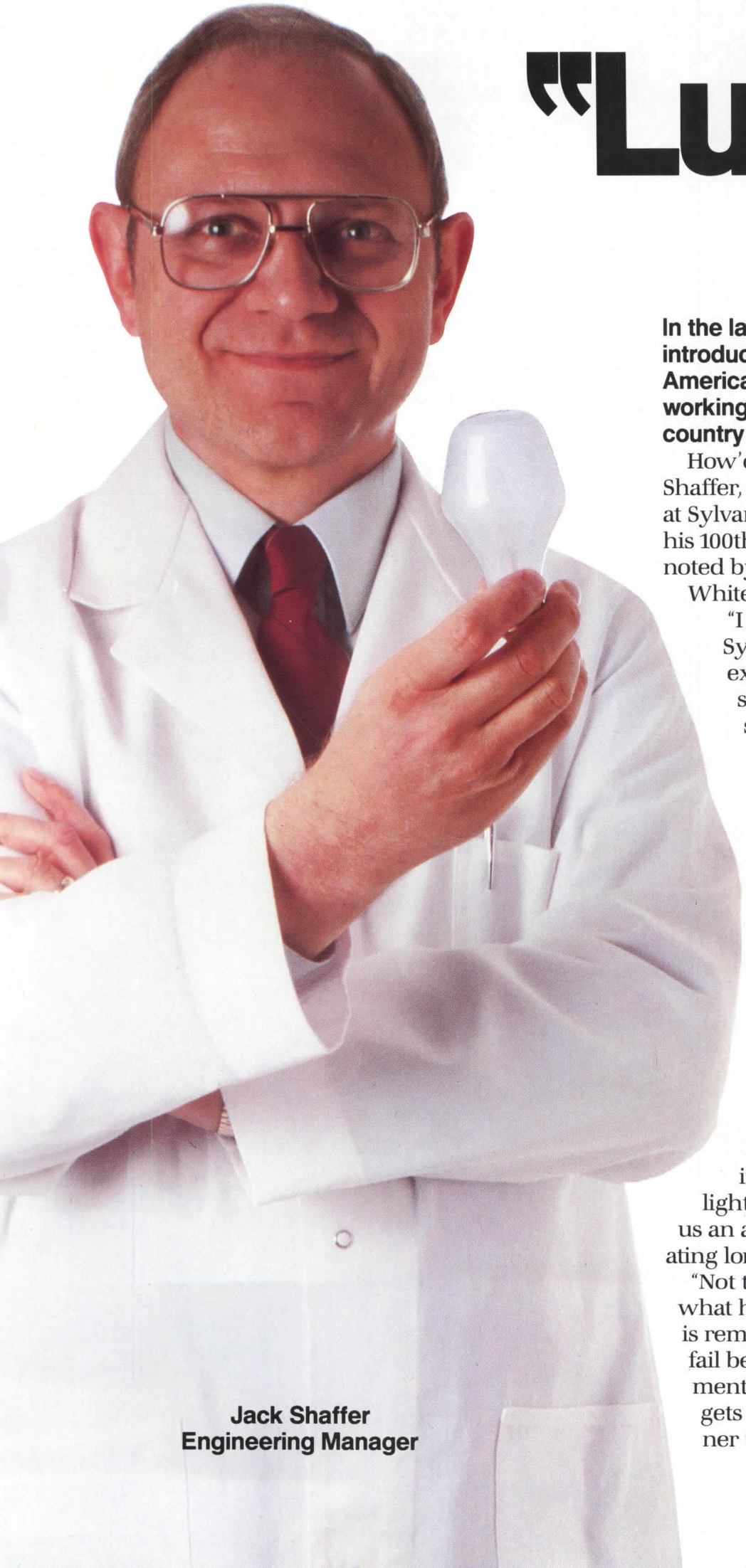

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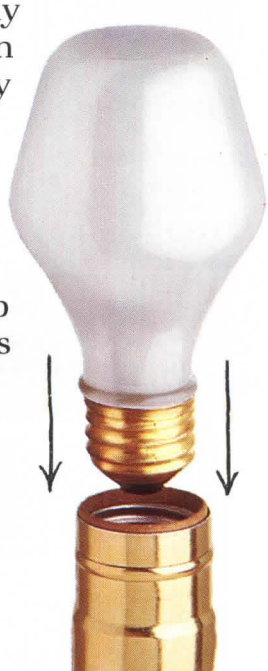
"What's more important to me is how the company I work for is committed to taking technology to the limit, into the 21st century.

"Right now, I'm working on the Capsylite® bulb. As it stands now, Capsylite is pretty amazing. 3,500 hours of life in one bulb. But I'm working to help make it burn even longer."

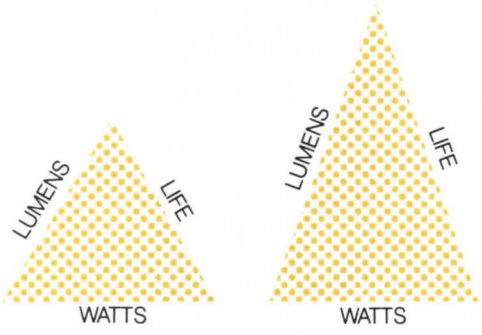
Our Capsylite lasts 40% longer than long life incandescents.

"I'm proud to say we were the first U.S. company to market tungsten halogen technology in an everyday light bulb. That gave us an advantage in creating long-lived bulbs.

"Not to bore you, but what happens in this bulb is remarkable. Light bulbs fail because the hot filament evaporates and gets thinner and thinner until 'poof.'"



are my life."



We found a way to increase lumens and life without increasing wattage.

"We added heavy inert gasses and halogen compounds which reduce that evaporation and increase rated life. But we also found a way to keep those lumens illuminating. You see, with most bulbs, the walls start to darken with use and so lumen output is decreased.

"But with Capsylite, the halogens scour the wall of the bulb and keep the lumens way up there over the bulb's life. So we increased lumens and life and it didn't take one iota of extra wattage to do it.



"Here in Montoursville, we make all the Sylvania Double Twin Tube lamps for the world market. Not bad for a little town in Pennsylvania. We do it by providing the finest quality products. Everyone, and I mean everyone, is involved in quality control. That means 500 people all working for the same goal."

Sylvania Double Twin Tube lasts 10,000 hours. That's right. 10,000 hours.

"Double Twin Tube is not only one of the smallest compact fluorescents ever, it also has great color rendering and an incredible 10,000 hours rated life. It also gets up to 75% energy savings (vs. standard incandescents).

"We also make all of the bonded Capsylite PAR Floods and Spots for Sylvania. Now what we did is very simple. We found a way to get the same light that you normally get for 150 watts and it costs you only 90 watts."



Sylvania Capsylite PAR Floods and Spots save you $.40 on every dollar.

"Efficiency like that means the lamps more than pay for themselves with energy savings. We've also perfected a diode technology that produces tighter beam spotlighting from our PARs for more efficient light distribution.

"Our thrust has been to help businesses save money. If you replaced all ordinary lighting with Sylvania energy saving products, you'd get up to 75% energy reduction. Right now."

We offer more energy saving lighting and best of all it's made right here.

"I know there's never a day when I go home and say to myself, 'I'm done.' Lots of people here feel this way. That's why we've been such lighting innovators."

Thank you, Jack. And all our other Sylvania engineers who are obsessed with bringing the best to lighting.

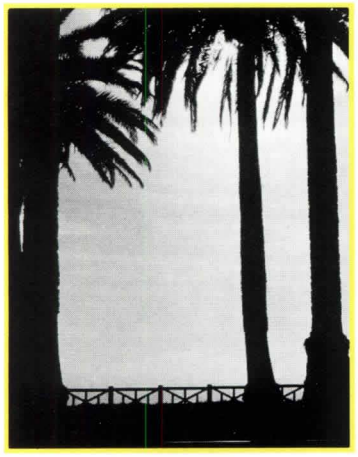
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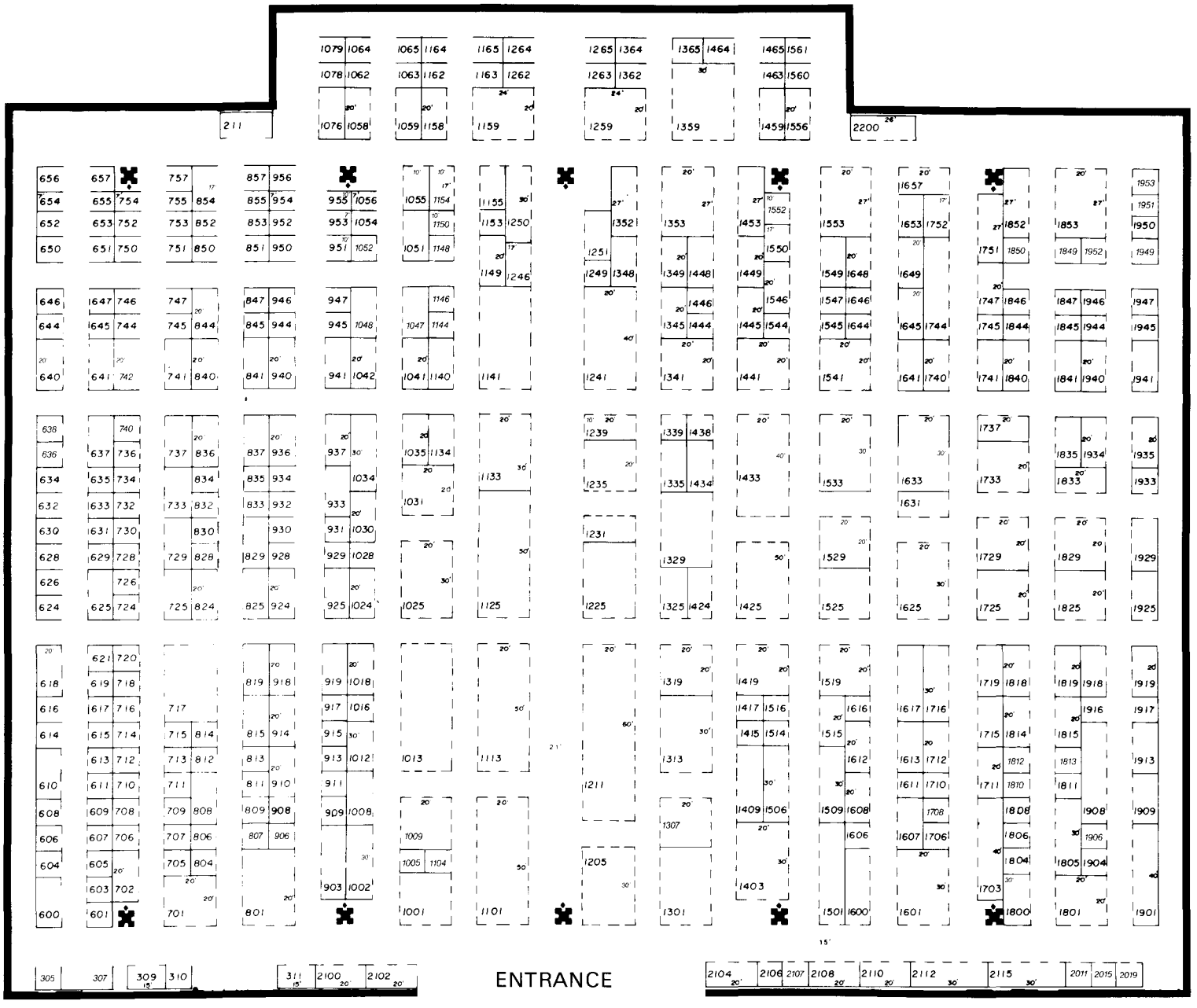
WHERE THE BEST COMES TO LIGHT.™

Exhibitor's List



See Exhibitor Index pg 17LW for complete description of products exhibited.

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1927 A.L.P. Lighting & Ceiling Products
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915 Abolite Lighting Inc.
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Los Angeles Convention Center • Los Angeles, California • April 13, 14, 15, 1988

SHOW HOURS:

Wednesday, April 13 **11 a.m.–7 p.m.**
Thursday, April 14 **10 a.m.–7 p.m.**
Friday, April 15 **10 a.m.–3 p.m.**



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606 Western Lighting Industries
1415 Western Lighting Standards
1239 Westinghouse Electric Corp.
1808 The Wiremold Co.
305 Yeu Dea Industry Co. Ltd.
1601 Zumtobel Lighting Inc.

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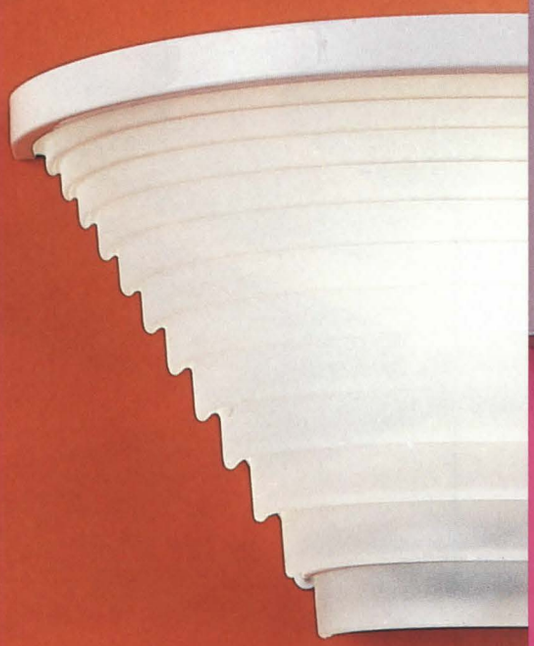
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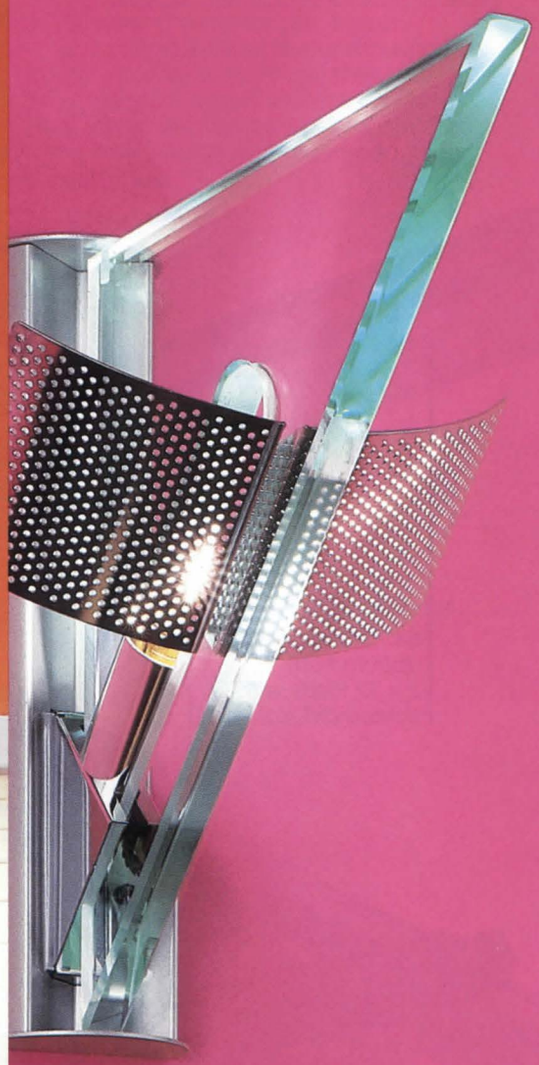
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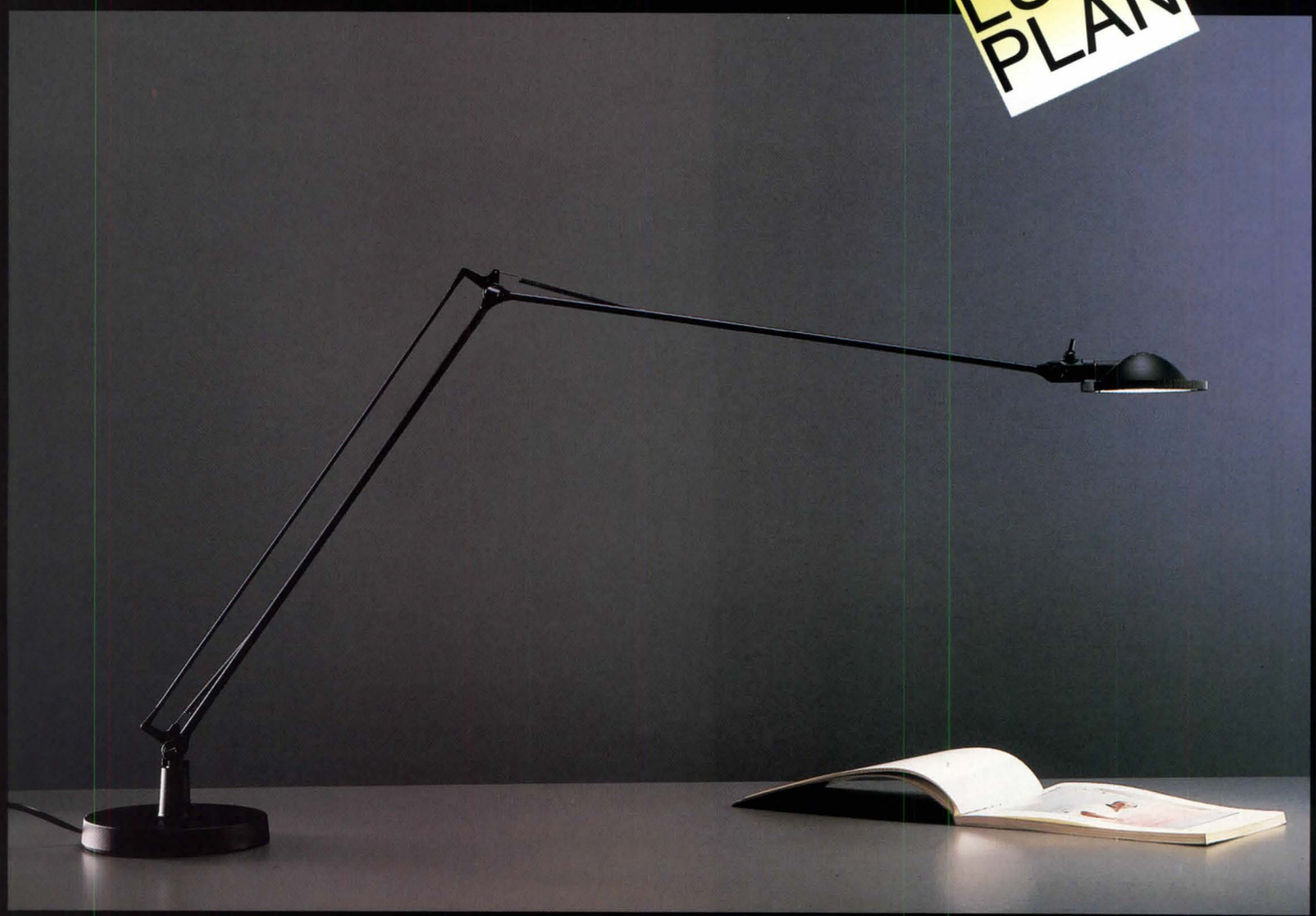
Berenice series: *table, clamp-on, floor, wall.*
Designers: *Paolo Rizzatto, Alberto Meda*

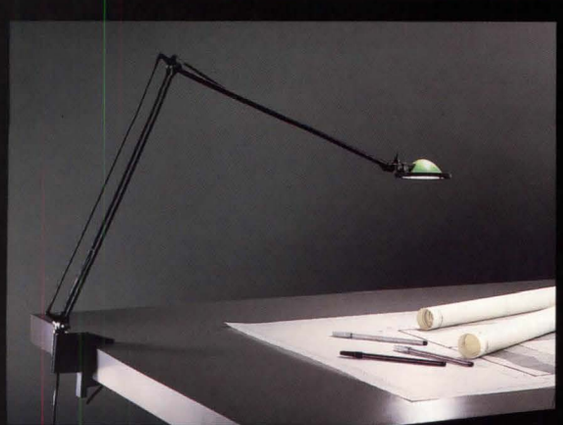
Luce Plan continues its objective of redefining lighting fixtures to meet specialized needs with Berenice, a versatile series of lamps.

Using the latest in technology and materials, the Berenice series of lamps is balanced for low voltage halogen bulbs. Built of aluminum with black or silver finishes, it has adjustable hinges of reinforced nylon, a support ring of rynite, and a parabolic reflector available in aluminum or optional pressed glass.

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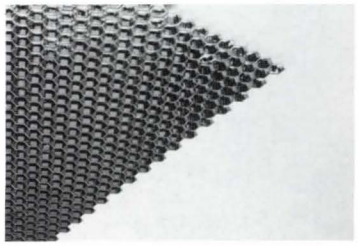
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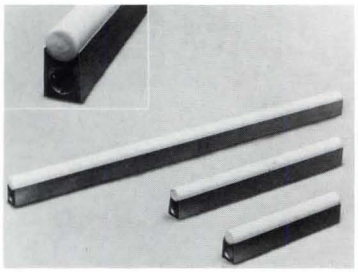
Circle **No. 384** on Reader Service Card

Products





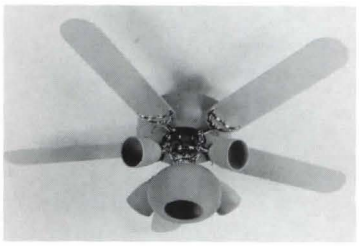
ALP Lighting and Ceiling Products
A new line of injection molded parabolic louvers, the Hexabolic 2 provides low brightness control. Silver, gold, copper specular, or satin finish may be specified for either acrylic or polystyrene models.
Circle 139 on reader service card



Aamsco Manufacturing
The Alinea is an extruded aluminum channel housing a tubular incandescent lamp. White, black, red, silver, gold, and other colors are offered.
Circle 140 on reader service card



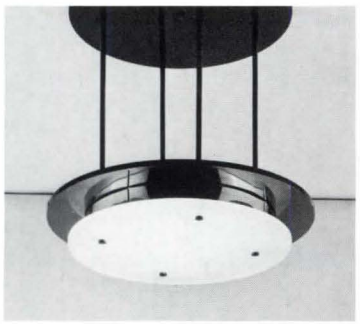
Alkco
Recessed Track + consists of low-voltage MR-16 lightmodules that can be aimed at 0–40 degrees and rotated 380 degrees.
Circle 141 on reader service card



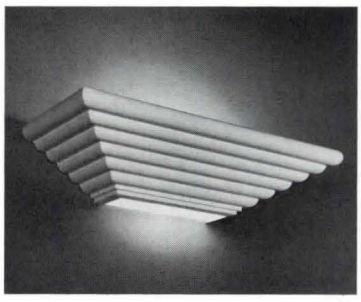
American Crafts
Designed to fit the Craftmade C-5 52 fan or compatible motors, ceramic shroud and light kits for ceiling fans are available in bisque and glazed finishes.
Circle 142 on reader service card



Amerlux
Series 700 HQI Display Light is equipped with a new single-ended 150-watt OSRAM metal halide lamp that provides quality color rendition.
Circle 143 on reader service card



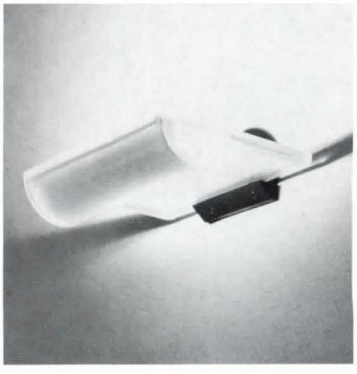
Appleton Lamplighter
This ceiling fixture consists of a black acrylic disk complemented by a frosted clear acrylic lens. The light source is four 100-watt halogen lamps.
Circle 144 on reader service card



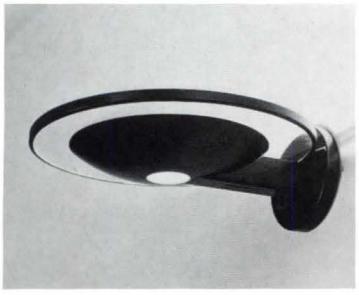
Architectural Lighting Systems
Sconce D'Elegance is a new series of sconces available in four styles, three different lamps, and either standard or custom colors.
Circle 145 on reader service card



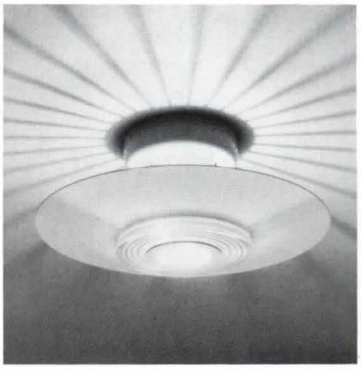
Arte De Mexico
The Antler Chandelier is made from naturally shed deer and elk antlers, which are used in their natural, individual shapes.
Circle 146 on reader service card



Artemide
Tiara, a halogen wall sconce designed by Gianfranco Frattini, is constructed of molded and glazed glass.
Circle 147 on reader service card



Artup Corp.
Providing both direct and indirect light, the A-1069 Wall Sconce is manufactured in Spain by Estiluz and available in matte black or 24-karat gold-plated finish.
Circle 148 on reader service card



Atelier International Lighting
Moni, a ceiling fixture designed by Achille Castiglioni, emits light through evenly spaced metal rods, creating a starburst effect.
Circle 149 on reader service card



Louis Baldinger & Sons
Designed by Michael Graves, the Firenza wall sconce is part of a complete line of architectural lighting fixtures designed by Graves. A second collection, designed by William Pedersen, will also be shown.
Circle 150 on reader service card

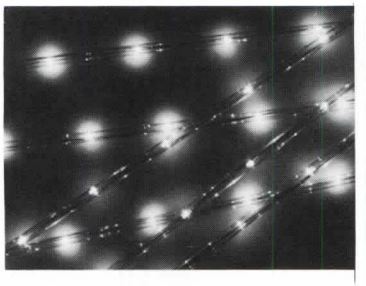




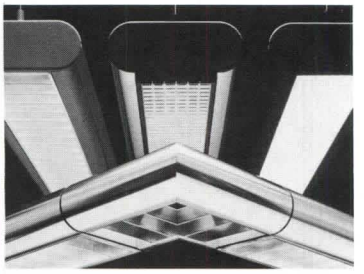
Bruel & Kjaer Instruments
Consisting of the Luminance Contrast Meter Type 1100, the Luminance Meter Type 1101, and the Precision Photometer Type 1105 with an Illuminance Transducer, the Light Measurement Instrumentation Programme will be featured.
Circle 151 on reader service card



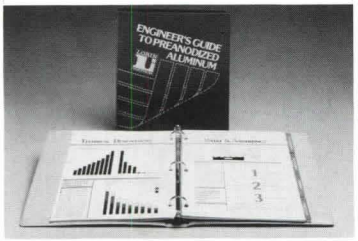
CPI Concrete Products
Popular colors and exposed aggregate finishes are now available in permanent maintenance-free prestressed concrete light poles and bollards.
Circle 152 on reader service card



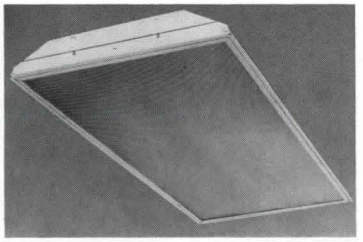
Celestial Products
Dynolite, the original parallel wired, low voltage tube light may now be specified in the standard 45-watt or the new 75-watt Britelite.
Circle 153 on reader service card



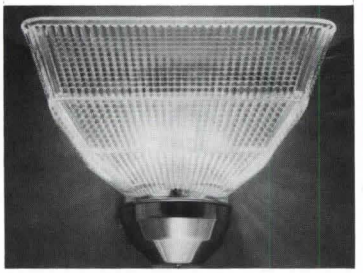
Coast Light Systems
Obround fluorescent fixtures can be mounted individually or in continuous systems. The extruded aluminum housing can be finished in custom colors, polished, plated or anodized.
Circle 154 on reader service card



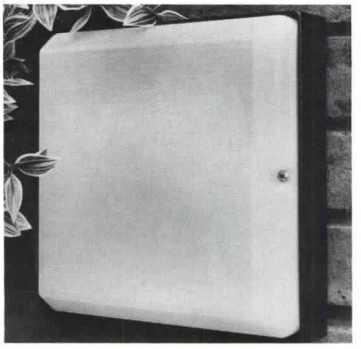
Coil Anodizers
Preanodized aluminum is prepared for forming, cutting, and laminating. A range of colors and finishes may be selected.
Circle 155 on reader service card



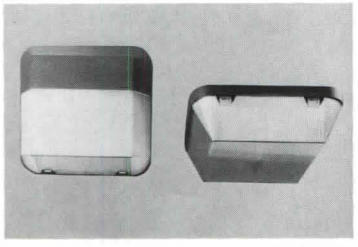
Crescent Lighting
The Troffer series of lamps features a flush, white steel frame as standard but can also be selected in white regressed aluminum or black regressed aluminum.
Circle 156 on reader service card



D'Lights
Available in bottle green, rose, champagne, or clear, with either a brass or chrome cap, these new fluorescent, prismatic glass wall sconces are offered in a variety of new shapes.
Circle 157 on reader service card



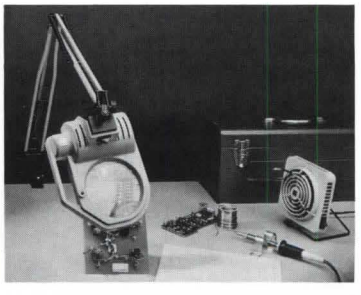
Designplan International
The Quadrant bulkhead is part of an extensive line of vandal- and weather-resistant lighting fixtures.
Circle 158 on reader service card



Devine Design
Fabricated from cast aluminum and featuring a ribbed back for heat dissipation, the DL System Ten series of luminaires is designed for stairways, courtyards, tunnels, parking decks, and similar areas.
Circle 159 on reader service card



Dual-Lite
A cast-aluminum specification-grade emergency exit sign, EXCALIBUR™ adapts to commercial, industrial, and institutional applications.
Circle 160 on reader service card

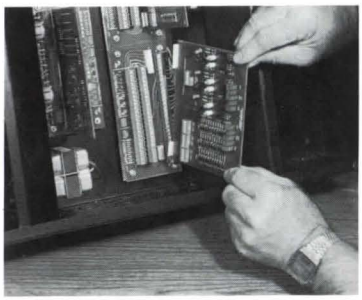


Electrix
The optical precision glass of the Halogen Magnification lamp delivers three, six, or thirteen diopter magnification. The 5-inch-diameter spring-balanced glass provides a 45-inch reach.
Circle 161 on reader service card



Emergi-Lite
The X40 series of Recessed Edge Lit Exit signs consists of a fluorescent lamp and engraved acrylic panels.
Circle 162 on reader service card

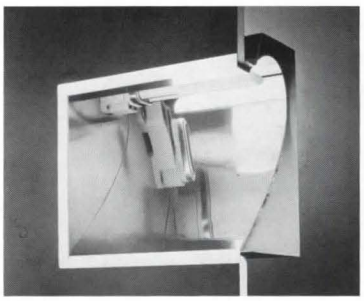




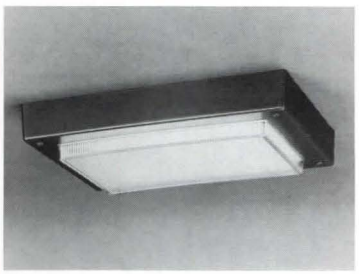
Enercron Data
The Remote Control and Signalling System features a self-energized transformer relay, the matrix master control group programmer, and both microprocessor and manual switching.
Circle 224 on reader service card



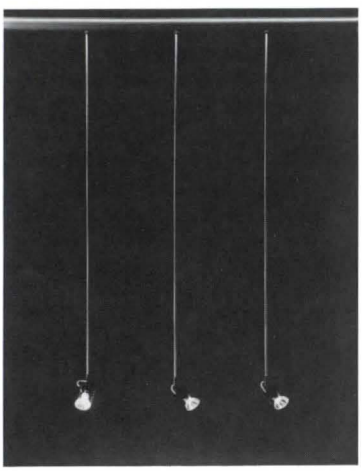
Enercron Technologies
A smaller version of the 5-, 7-, 9-, or 13-watt fluorescent retrofit adaptor will be introduced. Air-cooled housing contains a waterproof ballast.
Circle 225 on reader service card



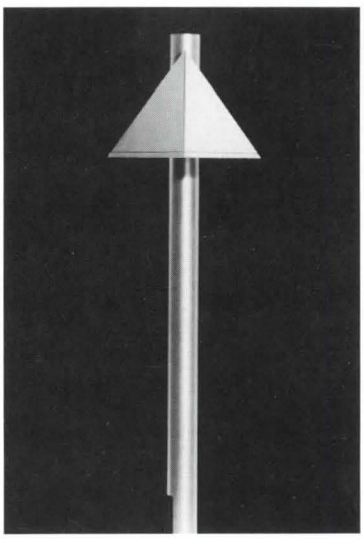
Engineered Lighting Products
Rectangular recessed wall washers utilize compact fluorescent lamps to provide even, unscalloped illumination. A four-inch depth allows for wall recessing for indirect lighting.
Circle 226 on reader service card



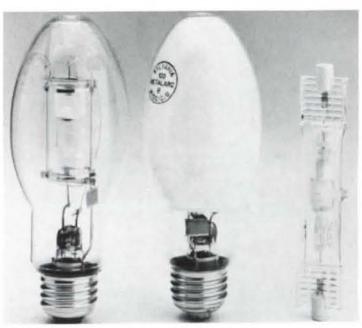
Fail Safe Lighting Systems
The FSS features one-piece, impact-resistant housing, has no exposed metal, and can accommodate up to three PL/13-watt lamps.
Circle 227 on reader service card



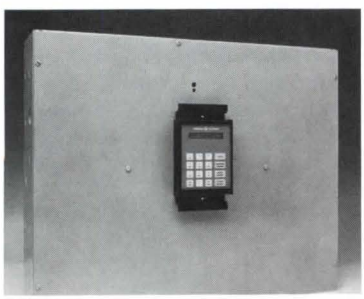
Flos USA
Designed by Santioga Miranda and Perry King, the Expanded Line is a colorful track lighting system that allows four to six individual fixtures to be suspended from it.
Circle 228 on reader service card



Forms + Surfaces
A product group designed by the European firm BEGA will be featured.
Circle 229 on reader service card



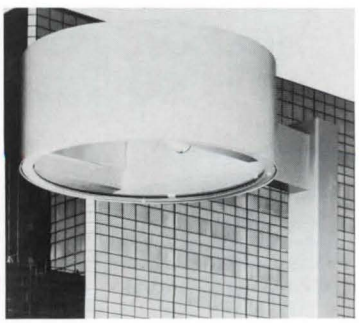
GTE
Compact low-wattage Sylvania Metalarc lamps expand opportunities to use an energy-efficient, high-color-rendering metal-halide light source in low and medium-height ceilings.
Circle 230 on reader service card



General Electric
Designed for use in shopping malls, supermarkets, and medium-size offices up to 50,000 square feet, the Smart Remote Control is a solid-state, field-configurable, stand-alone, low-cost, automatic lighting control panel.
Circle 231 on reader service card

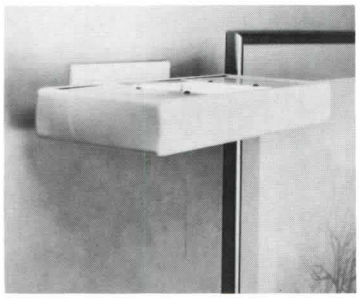


Gim Metal Products
The Model 3515 floodlight features die cast construction, will accommodate a variety of light sources up to 150 watts, and can be mounted on posts, walls, or ceilings.
Circle 232 on reader service card

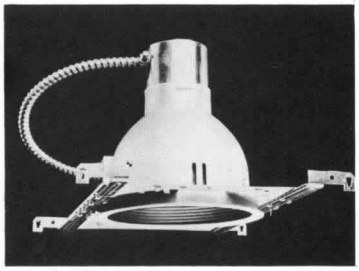


Guardian Light
A complete line of energy-efficient outdoor area lights, floodlights, and poles for parking lots, shopping centers, and convenience stores will be on display.
Circle 233 on reader service card

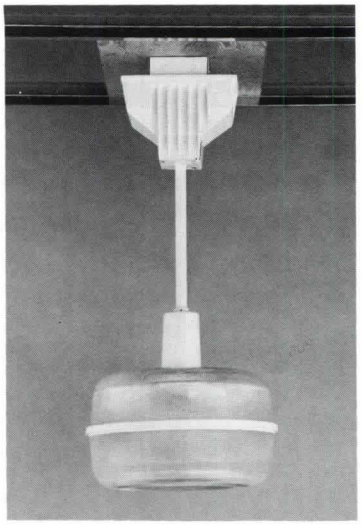




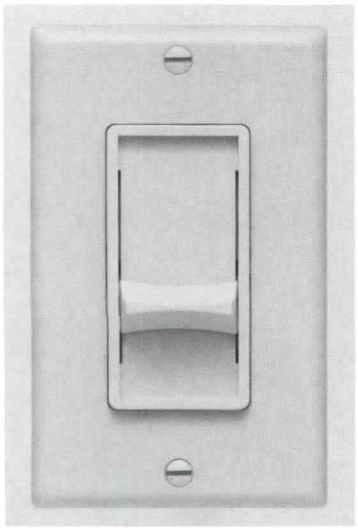
Guth Lighting
One-tenth the size of conventional systems, the Spirit indirect lighting system provides an equal level of shadow-free illumination. Numerous mounting options are available.
Circle 234 on reader service card



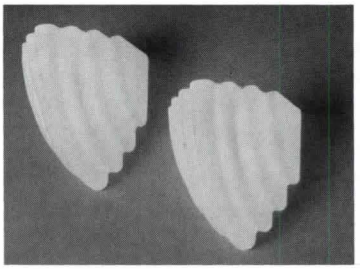
Halo Lighting
A series of Contractor Friendly™ downlights accommodates a choice of lamp types, wattages, and lighting effects for construction and remodeling applications.
Circle 235 on reader service card



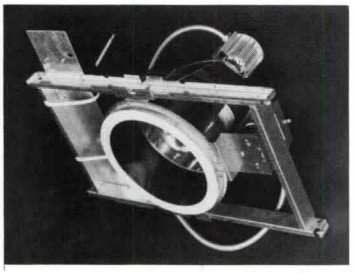
Holophane
Prism Glo consists of HID light sources used in semi-indirect luminaires with optics controlled by molded-glass reflecting and refracting prisms.
Circle 236 on reader service card



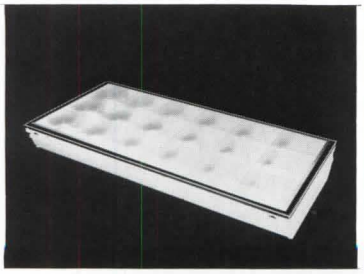
Hybrinetics
Incandescent slide dimmers, ranging from 600 to 1500 watts, are offered in single-pole and three-way models and in a variety of colors.
Circle 237 on reader service card



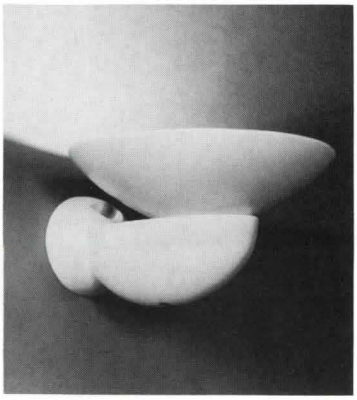
IPI
Kai, an incandescent wall sconce designed by Kazuhide Takahama for Sirrah, provides light through a ribbed hand-blown white glass diffuser. A companion table version is also available.
Circle 238 on reader service card



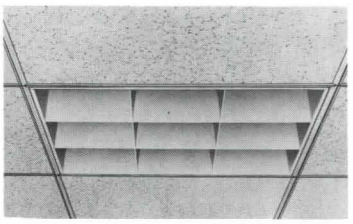
Indy Lighting
The 3000 Series of HID downlights complements the existing 6-inch, 8-inch, and 12-inch family of downlights.
Circle 239 on reader service card



JW Lighting
A fluorescent parabolic troffer, Paraloc offers a unique interlocking louver design in a range of lamp/louver configurations.
Circle 240 on reader service card



Justice Design Group
The new Federal Sconce is an addition to the line of cast-ceramic fixtures.
Circle 241 on reader service card



KLP
Utilizing Biax or Octron Curvalume lamps, Paraplus fits slot grid or grid ceilings consisting of up to 8′x 12′ modules.
Circle 242 on reader service card

FROM THE HOUSE THAT RUTH BUILT TO THE HOUSE THAT JACK BUILT

Incandescent, HID and Fluorescent. Cooper Lighting is the single source that offers a virtually limitless choice of lighting products. The choice for Yankee Stadium, the choice for millions of homes, and the choice for your next project.

Halo, Metalux, Crouse-Hinds, Lumark, McGraw-Edison and Sure-Lites are now all part of Cooper Lighting. We are an unparalleled resource for manufacturing, engineering, marketing, design and research. Seven regional showrooms provide an opportunity to experience first-hand the effects of lighting.

Brilliance from a single light source. Cooper Lighting, 400 Busse Road, Elk Grove Village, IL 60007.

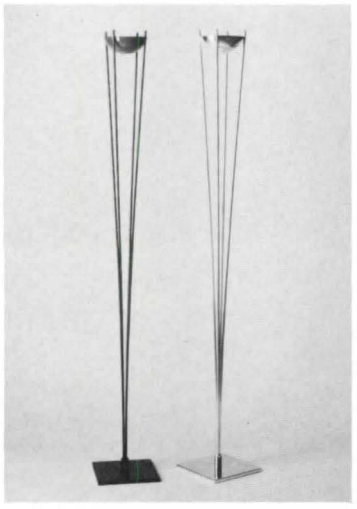
COOPER LIGHTING

THE SINGLE LIGHT SOURCE

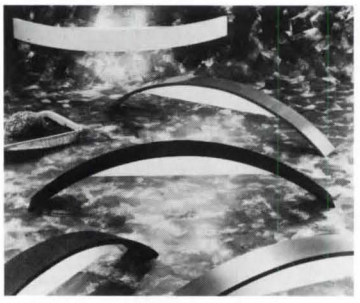
COOPER INDUSTRIES

Circle **No. 315** on Reader Service Card

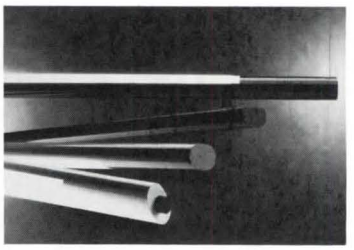




Koch + Lowy
Andrzej Duljas designed Andrea F-5180, a 500-watt halogen lamp with a full range sliding floor dimmer. Shade options include polished brass, chrome, black, or burgundy. The stem may be specified with either a black or brass finish.
Circle 243 on reader service card



George Kovacs
Arch, designed by Robert Sonneman, spans 41 inches, is offered in several finishes, and can be wall mounted or placed on a desk or credenza.
Circle 244 on reader service card



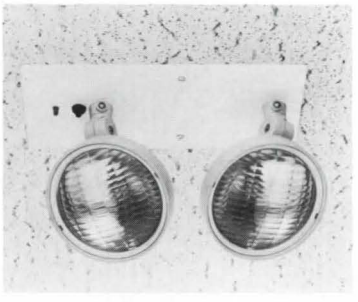
LAM Lighting Systems
ELAN™ indirect, direct, and directable lighting systems utilize both lenses and diffusers. The oval-shaped extruded aluminum linear fluorescent lamp is easily mounted.
Circle 245 on reader service card



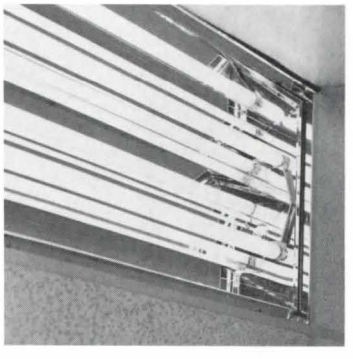
LMT
On display will be a complete line of photometric measuring instruments including goniophotometers, battery or line-powered luminance (pictured) and illuminance meters.
Circle 246 on reader service card



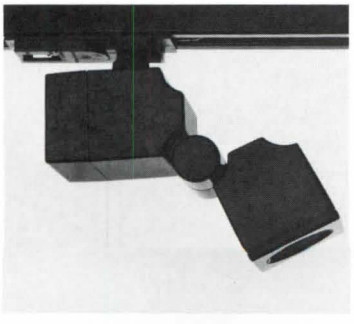
Lee Colortran
A specialized range of newly developed low-voltage and HID fixtures will be featured along with architectural dimming and control systems for a range of light sources.
Circle 247 on reader service card



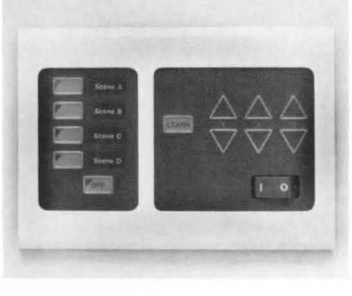
Lightalarms
An architecturally styled emergency light, New Series RC consists of a recessed electronics/battery package, two fully directional lamp heads, and matching trim/mounting plate.
Circle 248 on reader service card



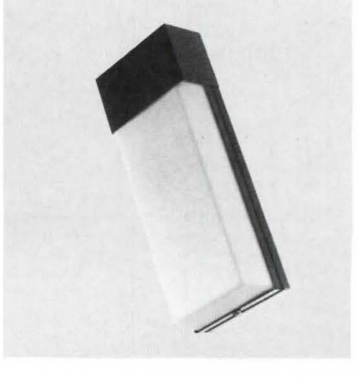
The Lighting Corporation
Featuring optical designed steel housing with 95 percent specular silver lining, Powermaster 90+ measures 2′ x 4′.
Circle 249 on reader service card



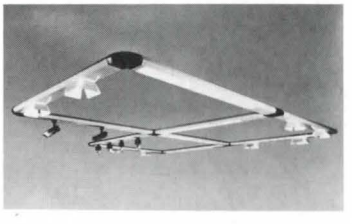
Lighting Services, Inc.
The MR-16 series of track and freestanding lighting units are constructed of die-cast fixtures designed for popular low-voltage lamps.
Circle 250 on reader service card



Lightolier
Designed for use with smaller lighting systems, the S1400 and S2000 Scenist Control systems provide optional wireless, hand-held infrared remote.
Circle 251 on reader service card

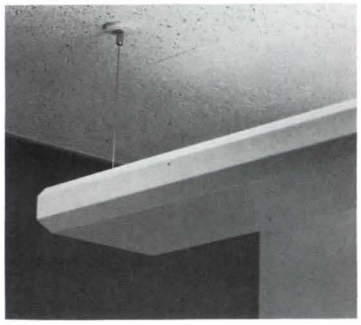


Lightway Industries
The Slimway is an energy-efficient architectural wall bracket for use with 7-, 9-, or 13-watt PL fluorescent lamps.
Circle 252 on reader service card

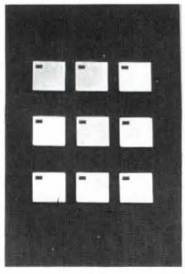


L'Image
L.L.S., a multifunctional lighting concept, integrates versatile lighting sources into one unit, capable of housing communication, power, and utility lines.
Circle 253 on reader service card

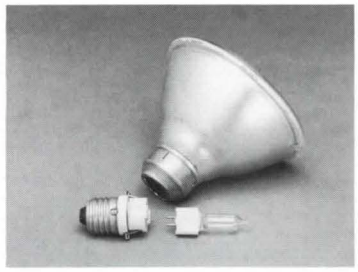




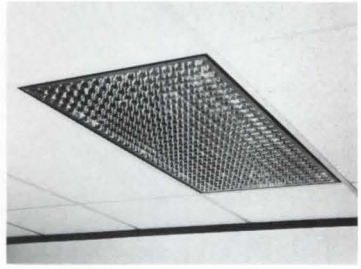
Litecontrol
Ceilings only 8′6″can now be indirectly lighted with LCI, a 2⅞″ deep, patented fixture providing even illumination.
Circle 254 on reader service card



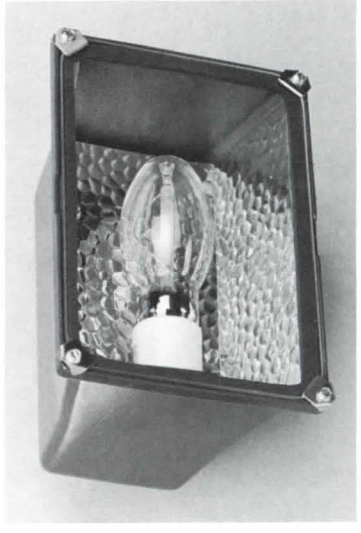
LiteTouch
Switching, dimming, and multi-scene preset can be accomplished with the LiteTouch 2000, a microprocessor-based, menu-driven lighting control system.
Circle 255 on reader service card



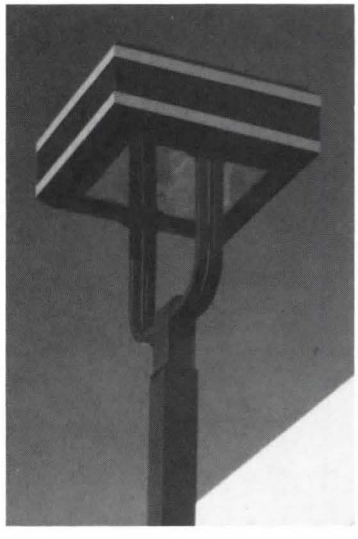
Lite-Tronics International
Replaceable 90-watt Ultrapar™ (patent pending) is the first halogen Par-38 lamp to feature a replaceable inner halogen lamp offering improved light distribution and 25 percent longer life.
Circle 256 on reader service card



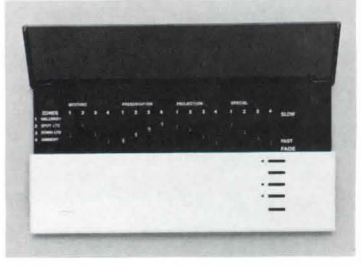
Lithonia Lighting
The new FL Troffer, constructed of metallized, cube-pattern louvers, provides a clean, uncluttered look and offers a range of air functions and ceiling compatibility.
Circle 257 on reader service card



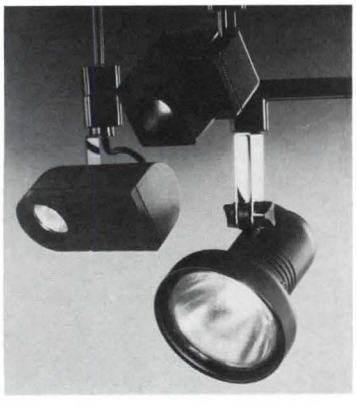
Lumark
The surface-mounted light fixture Yes Microflood is a low-wattage HID lamp that combines the use of long-life, medium-base, high pressure sodium lamps with a formed aluminum stippled reflector.
Circle 258 on reader service card



Lumec
OPT Optilux offers various light distributions and options around a square flat body with truncated horizontal edges. Type V distribution and pole-top assembly are new features.
Circle 259 on reader service card



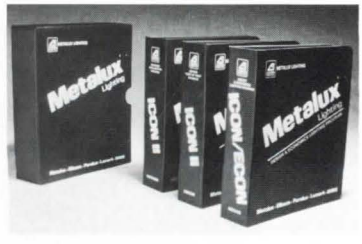
Lutron Electronics
Working displays of Grafix Eye and Nova T wallbox products and Orion and Paesar lighting systems highlight the complete line of solid state dimmers, lighting controls, and energy management products.
Circle 260 on reader service card



Marco/Marvin Electric
New luminaires and accessories in addition to the full line of track lighting will be shown.
Circle 261 on reader service card

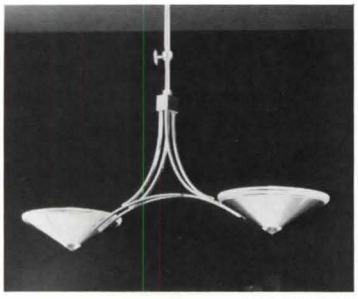


McGraw-Edison
The Concise Luminaire, a low-profile HID light fixture, provides perimeter security lighting and illumination for landscapes and walkways. A normal power factor single voltage or high power factor multi-tap HID ballast may be selected.
Circle 262 on reader service card

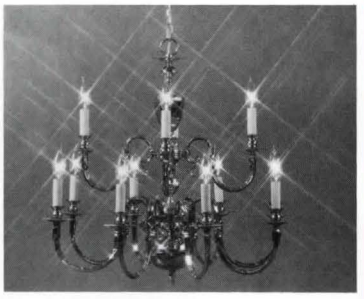


Metalux Lighting
The packaging and software for the Icon/Econ engineering/design oriented computer program includes a user's manual and floppy disc program in either 5¼″ or 3½″ format.
Circle 263 on reader service card

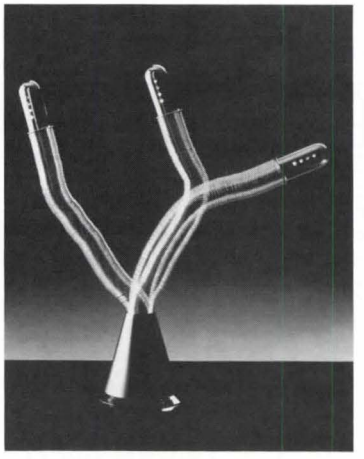




Metropolitan Lighting
The Opticall Illusion, a halogen hi-tech lighting fixture designed in Italy, emanates light through a small glass oculus on top of a brass bowl. Two or three lights may be specified.
Circle 264 on reader service card



Monarch Lighting
The Williamsburg Chandelier, part of a new line of European-styled lamps that incorporate SynthaFlame technology, renders a natural candleflame effect from light bulbs.
Circle 265 on reader service card



Multiworld
Designed by Marco Aldegani, Bugja is a multiform, 40-watt table lamp constructed of a chrome-plated metal stem, matte black diffuser, and lacquered metal body.
Circle 266 on reader service card



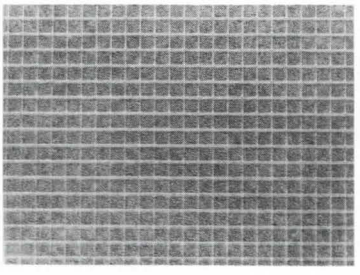
New Horizons Lighting
Low voltage tube lighting, tube-light chandeliers and curtains, firefly tree lighting, miniature spotlights, star panels, ceiling coffers, and other architectural tubular fluorescent lighting systems will be shown.
Circle 267 on reader service card



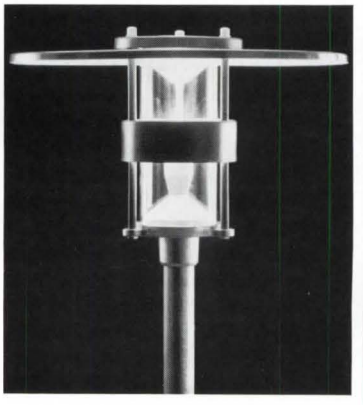
Noral
Available in black, white, and patinated green, the Roulette II lantern is constructed of die-cast aluminum and finished with unbreakable polycarbonate.
Circle 268 on reader service card



Norton Luminous Ceilings
This natural hardwood version of the Quad Cube design is standard in red oak.
Circle 269 on reader service card



Polarized International
The new energy-efficient polarized acrylic Computilite panels redirect light away from the computer screen, reducing glare.
Circle 270 on reader service card



Poulsen Lighting
Jens Moeller Jensen designed the Sattelit Maxi/Mini Post Top series.
Circle 271 on reader service card



Quoizel
Chandeliers in the Royal Kensington collection are finished in polished brass with large ornamental arms that hold hand-made acid-etched Victorian lace glass.
Circle 272 on reader service card

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Van— 1985 IBD award-winner, Astro, Eta and Gep designed by Robert Pamio.

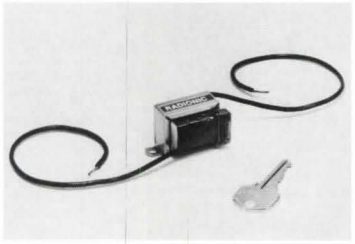
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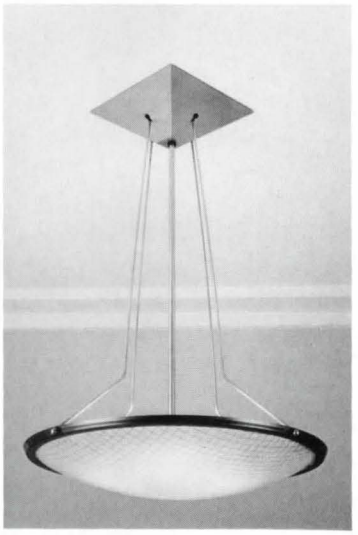
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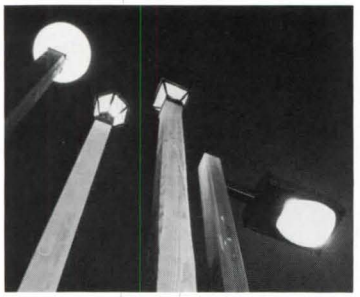
Radionic Industries
A new miniature fluorescent ballast, targeted for single-ended twin tube lamps and the conventional T5 linear fluorescents, operates 6- to 9-watt lamps.
Circle 273 on reader service card



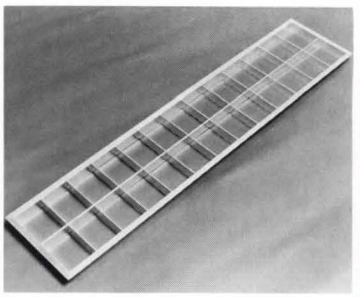
Ron Rezek
The Celeste suspension lamp combines several finishes: molded wire glass sandblasted on the inside, a brushed stainless steel ring, an anodized brushed aluminum canopy, a nickel-plated center rod, and polished brass rods.
Circle 274 on reader service card



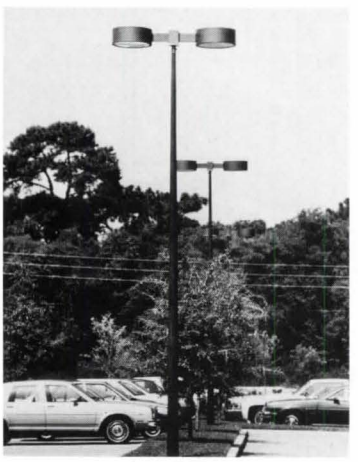
Robertson Transformer
On display will be a smaller, lighter energy-saving ballast for 40- to 75-watt single and double slimline lamps at 120 volt or 277 volt Class P.
Circle 275 on reader service card



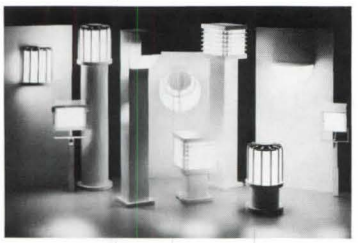
Scholl
Designed for both residential and commercial exterior lighting applications, Laminated Wood Light Standards are offered in a choice of wood species, shapes, sizes, and colors.
Circle 276 on reader service card



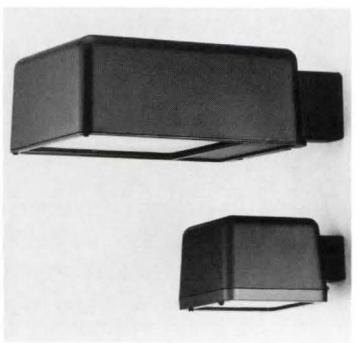
Scientific Lighting Products
Custom parts may be specified for Lumiflux Parabolic aluminum louvers and baffles, available in a range of sizes and finishes.
Circle 277 on reader service card



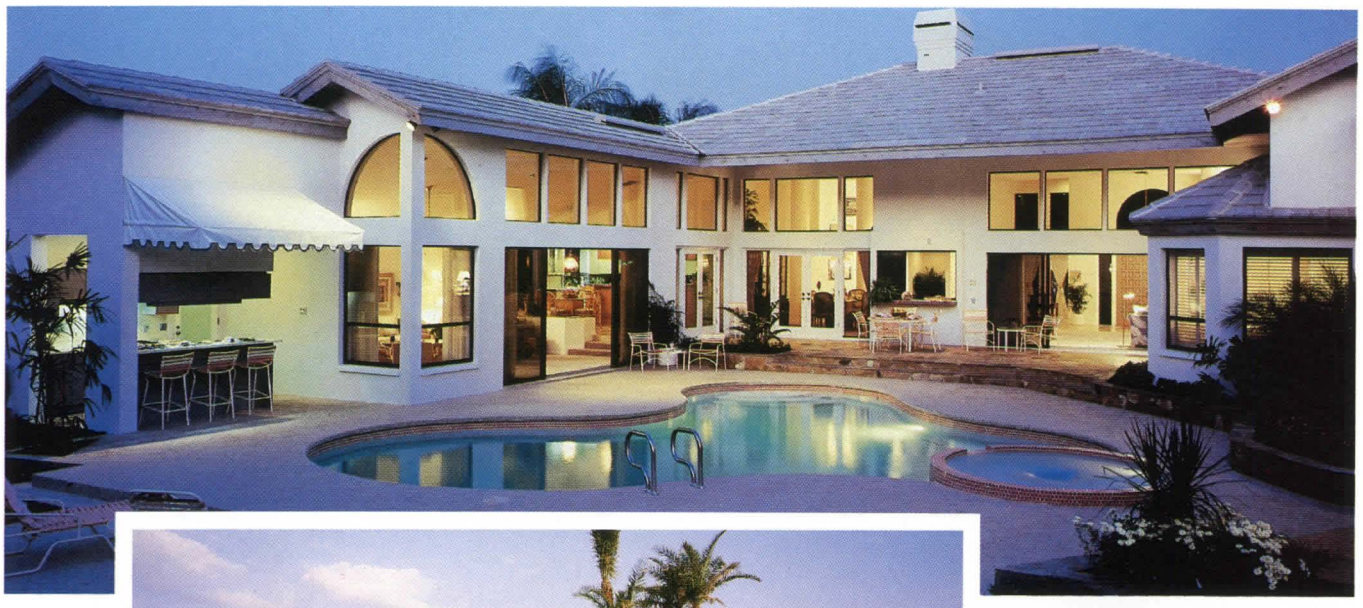
Sherman International
These fiberglass poles are fabricated by a centrifugal casting process, providing a smooth, lightweight, maintenance-free pole.
Circle 278 on reader service card



Staff Lighting
Available in black, silver, bronze, or white, the DZ collection of outdoor luminaires illuminates courts, pathways, parking areas, gardens, building walls, and ceilings.
Circle 400 on reader service card



Stonco
RM Series luminaires includes an aluminum arm for installation on round or square poles. A full range of accessories complements the collection.
Circle 401 on reader service card





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You can have a luxurious home built on your site at Saddlebrook's Fairway Village. Homes like the award-winning Arthur Rutenberg designs* shown above, as well as Saddlebrook cluster homes, or one designed by your own architect. Golf course and other choice building sites are available . . . all with the sparkling ambiance and luxury conveniences of Saddlebrook golf and tennis resort. Homes from $150,000. For more information, write or call John Fahey, VP Sales, Saddlebrook.

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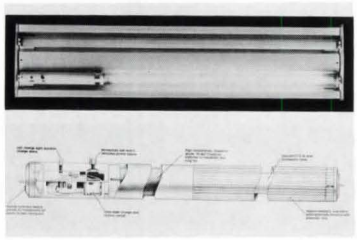
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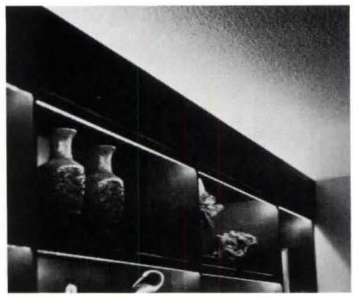




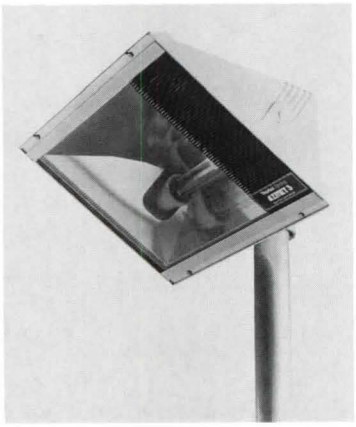
Sun Valley Lighting
This collection of cast-aluminum decorative, classic, and traditional lighting fixtures and poles includes matching arms, sconces, and bollards.
Circle 402 on reader service card



Sure-Lites
Stick SLS 4, a self-contained unit that allows a standard fluorescent lighting fixture to operate as an emergency light for up to two hours, fits into most 4-foot lighting fixtures.
Circle 403 on reader service card



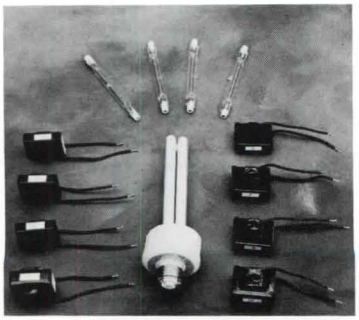
Sylvan Designs
New low-voltage Light Buds Channel® features four-way directional linear lighting and easily replaceable light "buds" for bright area or cove lighting in a rigid aluminum channel.
Circle 404 on reader service card



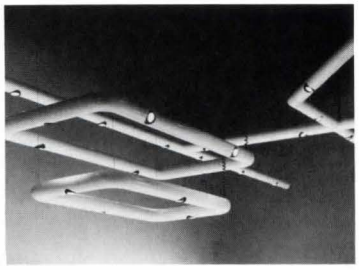
Thorlux Lighting
Azmet 3, an area floodlight for lamps up to 400 watts, consists of an anodized aluminum reflector and integral control gear. Pole or cradle mounting is possible.
Circle 405 on reader service card



Times Square Lighting
Built-in framing shutters allow the MR75 to mask or frame off any area with light, thus creating stars, trees, or cityscapes.
Circle 406 on reader service card



Tritek International
Custom-made ballasts for compact fluorescent lamps, and halogen and PL lamp adapters are featured.
Circle 407 on reader service card



U.S. Power Beam
Directable lamp holders housed in three-inch-diameter modules allow Inner-Spaces to form any length or configuration.
Circle 408 on reader service card

LIGHTING WORLD INTERNATIONAL REGISTRATION FORM
APRIL 13, 14 & 15, 1988 LOS ANGELES CONVENTION CENTER

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Type or print clearly with a dark pen. Copy this form as necessary; use a separate copy for each registrant.

YOUR NAME MR. MS. _____ (FIRST) _____ (LAST)

TITLE _____ TITLES MUST BE ABBREVIATED. Please do not go beyond spaces provided.

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PLEASE CHECK ONE BOX IN EACH CATEGORY:

JOB FUNCTION:

- A ☐ Architect
- B ☐ Lighting Designer
- C ☐ Consulting Engineer
- D ☐ Building/Plant Engineer
- E ☐ Interior Designer
- F ☐ Contractor/Developer
- G ☐ Representative
- H ☐ Facility Planner
- K ☐ Facility Manager
- M ☐ Other _____ (please specify)

JOB TITLE:

- A ☐ Owner
- B ☐ Partner
- C ☐ President
- D ☐ Vice President
- E ☐ Director
- F ☐ Specifier
- G ☐ Buyer
- H ☐ Manager
- K ☐ Other _____ (please specify)

Number of Employees in Your Firm:

- A ☐ 1-10
- B ☐ 11-20
- C ☐ 21-49
- D ☐ 50-99
- E ☐ Over 100

Organization's Principal Business:

- A ☐ Architectural Firm
- B ☐ Engineering Firm
- C ☐ Interior Design Firm
- D ☐ Lighting Design Firm
- E ☐ Retail Establishment
- F ☐ Government Agency
- G ☐ Educational Institution
- H ☐ Sales
- I ☐ Manufacturing
- J ☐ Other _____ (please specify)

PLEASE CHECK APPROPRIATE BOXES (Note: Attendees who register for seminars, Preview of Products and/or Universal Tour will automatically receive a badge for the Exhibit Hall)

- ☐ **$10.00** — Entrance to Exhibits for all three show days
- ☐ **$20.00** — Opening Breakfast/Keynote Address (4/13—8:30)
- ☐ **$30.00** — Preview of Products (4/13-1:00)
- **$30.00** — Fee for individual seminars (Plese check off the seminars you are planning to attend)
  - ☐ **101** Creating Subjective Responses OR ☐ **102** Airfield Lighting (4/13—3:00)
  - ☐ **201** Light: The Bridge For All Cultures (4/14—8:30)
  - ☐ **301** Design and Lighting of Streets and Cityscapes (4/14—10:00)
  - ☐ **401** Historical Perspectives OR ☐ **402** Industrial Lighting (4/14—11:30)
  - ☐ **501** Learning to "See the Light" (4/14—1:00)
  - ☐ **601** Energy Constraints OR ☐ **602** Lighting Maintenance (4/14—2:30)
  - ☐ **701** Lighting Education (4/15—8:30)
  - ☐ **801** A New Look at Light and Color (4/15—11:00)
  - ☐ **901** Lighting the Ben Franklin Bridge (4/15—1:00)
  - ☐ **902** Lights, Camera, Action (4/15—2:30)
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Payment must be included with registration. **Make check or money order payable to:** National Expositions Company, Inc.

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Do not mail this form after March 28, 1988. On-site registration for exhibits will be available at slightly higher prices ($15.00) beginning at 8:30 a.m. daily. Seminar registration will begin at 7:30 a.m.

REFUND POLICY
Cancellation of seminars will be accepted if received in writing, postmarked by March 28, 1988. Expo only, breakfast, and Universal Tour tickets are non-refundable.

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_____	S DBL/TWN	_____	
_____	S DBL/TWN	_____	

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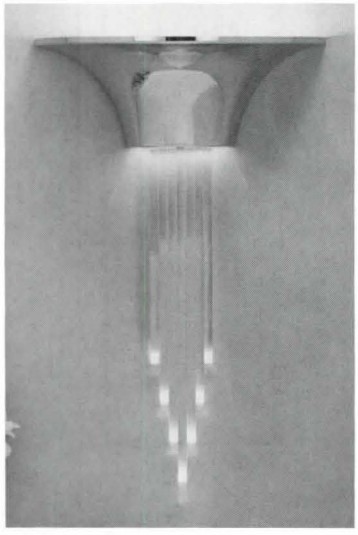




Unenco
An addition to the collection of ceiling-mounted occupancy sensors, Switch-O-Matic® controls incandescent and fluorescent fixtures and has no heat-generating components.
Circle 409 on reader service card



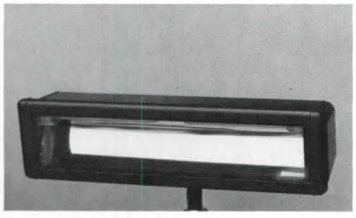
Union Metal
An archive of original hand-crafted patterns has been used for over 80 years in the manufacturing of this family of historic lampposts.
Circle 410 on reader service card



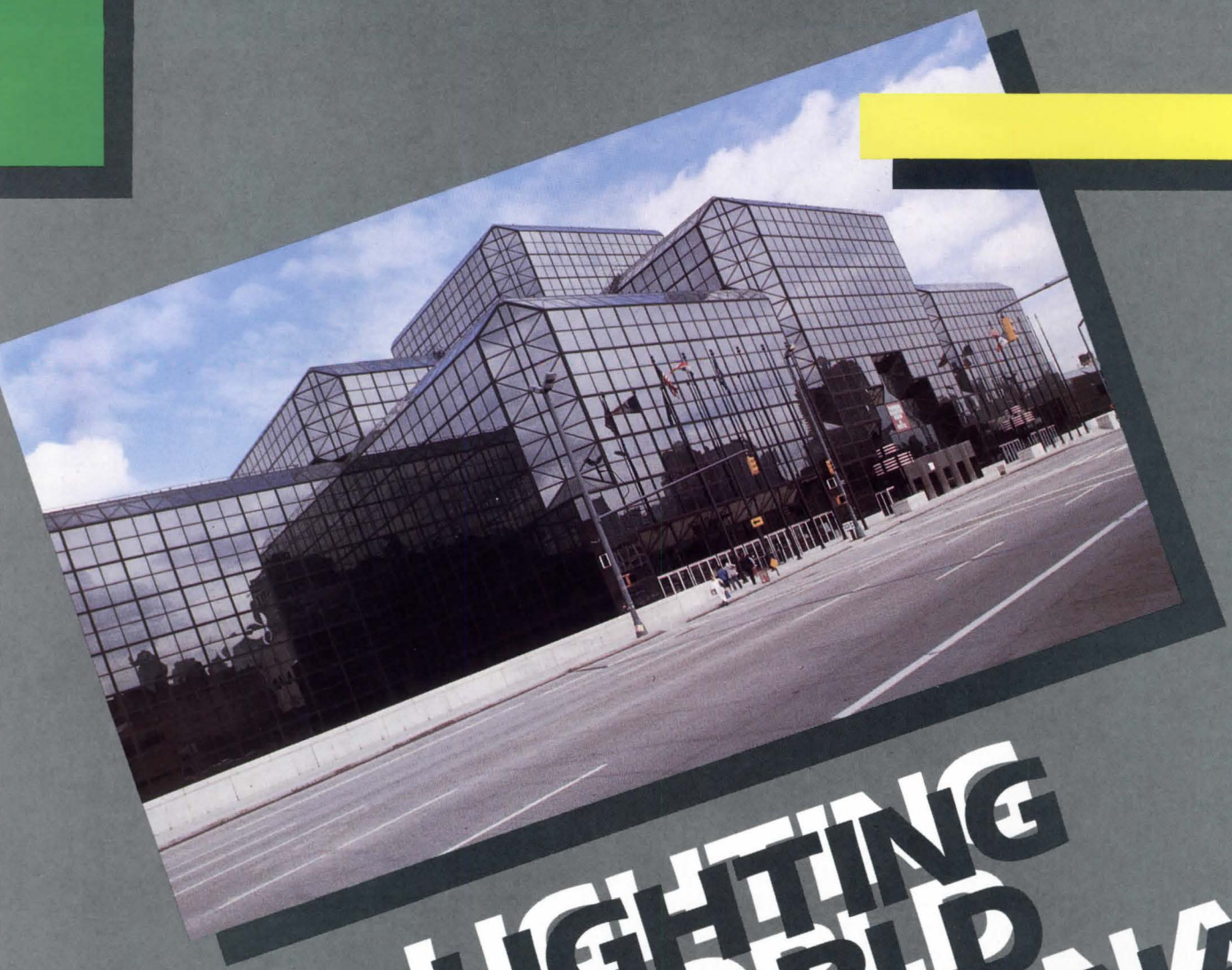
Visa Lighting
Offered in polished solid brass, polished chrome, or a painted finish and featuring acrylic cascades, this fixture stands 25 inches tall.
Circle 411 on reader service card



Westinghouse Electric
Incom 1000, a programmable, stand-alone lighting control system for commercial, institutional, and industrial facilities will be introduced.
Circle 413 on reader service card



Western Lighting Industries
Omegalux 1200 Series of floodlights combines hi-tech fluorescent lamps and are constructed of all-metal cast and extruded housing, a fully gasketed unbreakable Lexan lens, plus a baked enamel finish on every unit.
Circle 412 on reader service card



LIGHTING WORLD INTERNATIONAL

MAY 10, 11, 12, 1989

JACOB K. JAVITS CONVENTION CENTER, NEW YORK CITY

The largest architectural lighting exposition and conference in the United States. A complete conference program which provides technical and educational value to all members of the lighting industry. The newest innovations in architectural lighting products.

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Sponsored by:
The Illuminating Engineering Society of North America
The International Association of Lighting Designers
The New York Section Illuminating Engineering Society

Circle **No. 344** on Reader Service Card

General Information

Registration Information—Exhibits, Seminars and Special Events

LIGHTING WORLD INTERNATIONAL is the largest trade show in the United States dealing specifically with the many aspects of architectural, industrial, commercial, institutional and decorative lighting. It is an international event designed to facilitate the exchange of information and the transaction of business within the industry.

LIGHTING WORLD INTERNATIONAL is open to all professionals active in the industry including architects, lighting designers, consulting engineers, building and plant engineers, interior designers, contractors and developers, facility planners and managers, distributors, manufacturers, representatives, educators and the working press. Children under the age of sixteen will not be admitted to the exhibition.

All seminars will take place on the second floor of the Los Angeles Convention Center. Registration fees for seminars vary. Please consult the registration form for fee schedule.

Exhibit Hours

Wednesday	11:00 A.M.–7:00 P.M.
Thursday	10:00 A.M.–7:00 P.M.
Friday	10:00 A.M.–3:00 P.M.

Registration

Registration will take place in the main lobby of the Los Angeles Convention Center, 1201 South Figueroa Street, Los Angeles.

Registration Hours

Wednesday	7:30 A.M.–7:00 P.M.
Thursday	7:30 A.M.–7:00 P.M.
Friday	7:30 A.M.–3:00 P.M.

A badge allowing entrance to the exhibition for all three show days is $15.00.

Badges

Where the information has been furnished, attendees will be provided with a color coded badge indicating their occupation. The coding is as follows:

Architect	Blue
Lighting Designer	Brown
Interior Designer	Green
Consulting Engineer	Black
Building/Plant Engineer	Grey
Contractor/Developer	Purple
Representative	Orange
Facility Planner	Yellow
Facility Manager	White

Offices

The Show Management office will be located on the second floor of the Los Angeles Convention Center in Room S-2. Information regarding future LIGHTING WORLD INTERNATIONAL events will be available throughout the show.

Press Room

Working press are invited to make full use of the Press Room located on the second floor of the Los Angeles Convention Center in Room 207. Personnel will be on hand to assist qualified members of the press in their coverage of LIGHTING WORLD INTERNATIONAL. The Press Room will be open during all show hours.

Services

Lost and Found—located at the Security Desk in the main lobby of the Convention Center.
First Aid Room—located in the north corridor off the main lobby of the Convention Center. The first aid room will be staffed with a registered nurse.
Message Center—Messages may be left for an attendee or an exhibitor at the message center located in the main lobby of the Convention Center.
Bus Service—Shuttle buses will run continuously during the show hours between the Convention Center and the Los Angeles Hilton, the Hyatt Regency Los Angeles, and the Westin Bonaventure. Consult signs in the lobbies of the hotels and the LIGHTING WORLD INTERNATIONAL registration area for schedule.
Parking—Ample parking is available at the Convention Center at the rate of $4.00 per day per car.
Restaurant Reservations—A restaurant information counter, staffed by the Los Angeles Visitors and Convention Bureau, will be located in the main lobby of the Convention Center during the show hours for your convenience.
Dining Facilities—The L.A. Pub and Restaurant is located off the main lobby of the Convention Center. In addition, there are two concession stands open in the exhibit hall.

LIGHTING WORLD INTERNATIONAL is sponsored by:

The International Association of Lighting Designers
18 East 16 Street, Room 208
New York, NY 10003
212/206-1281

The Illuminating Engineering Society of North America
345 East 47 Street
New York, NY 10017
212/705-7913

The Southern California Section of the Illuminating Engineering Society
P.O. Box 800, G.O.1, Room 390
Rosemead, CA 91770
213/465-1266

LIGHTING WORLD INTERNATIONAL is produced and managed by:

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Solicitation of business on the premises of the exhibition by anyone other than official exhibitors is strictly prohibited. Please report any such occurrence to Show Management.



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Circle No. 340

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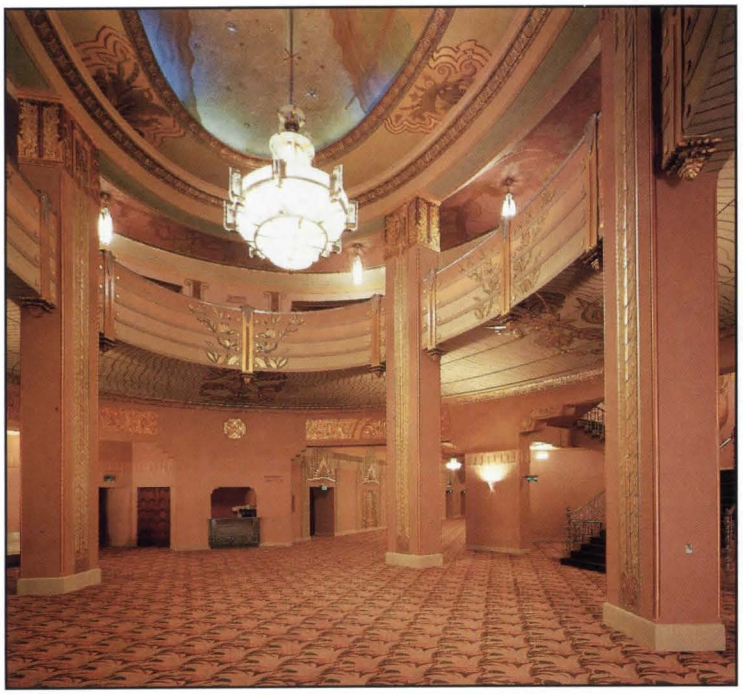


Booth #924, Lighting World 6, Los Angeles

KIM LIGHTING
16555 East Gale Ave., Post Office Box 1275
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FAX 818/330-3861

Circle No. 339

P/A in April



Bob Ware

Lobby of the Wiltern Theater, Los Angeles, restored by Levin & Associates.

Restoration and Rehabilitation

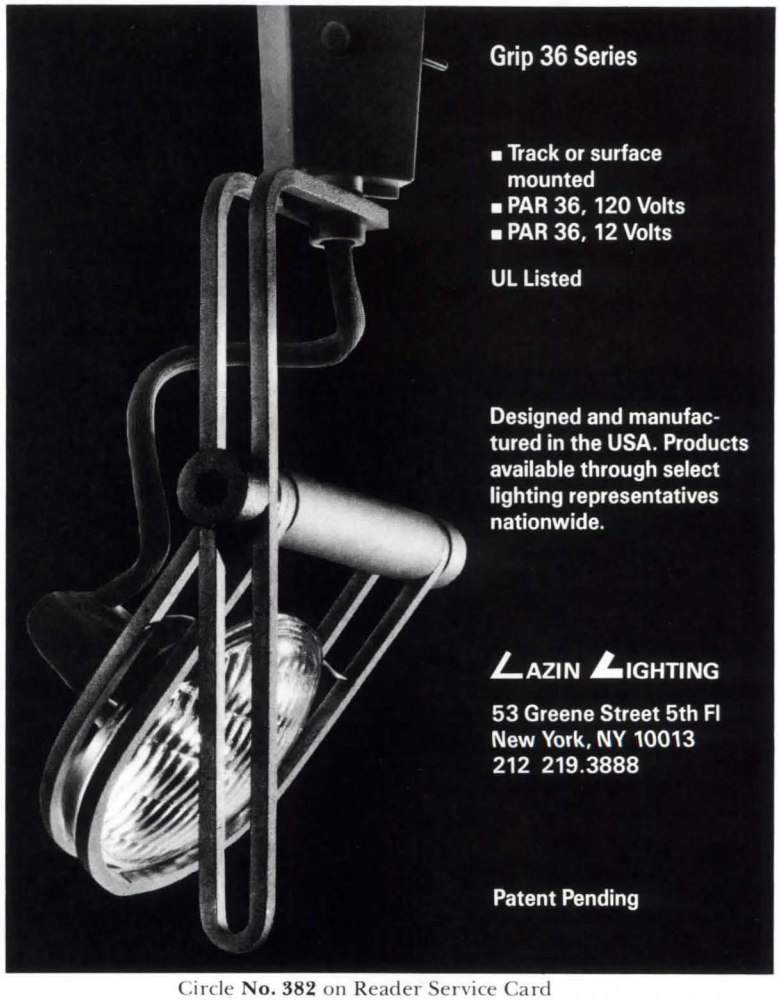
The revival of buildings for use as meeting, assembly, theater, or viewing spaces will be the tie that binds the various articles on preservation in April. The featured projects, all of which contain glorious detail, will include the Palazzo della Pilotta in Parma, Italy; Homewood in Baltimore; the Office of the Secretary of the Navy in Washington, D.C.; the Bartos Forum in New York's Public Library; the Majestic Theater, also in New York; and the Wiltern Theater in Los Angeles.

Also in April

Microcomputers—how they are affecting architectural practice and the architectural computer industry—will be the focus of Technics in April. The issue also will have a special section on building security, with articles by experts in the field and case studies of buildings.

Future Issues

Look forward to a major client profile in May and several articles on important new buildings. May Technics will present an evaluation of the office chair.



Circle **No. 382** on Reader Service Card





We put holes in your roof to keep it from leaking.

The purpose of a roof is to keep what's outside a building from getting inside. Which means the last thing you'd expect to want in your roof is a hole.

But that's exactly what we do with the Hi-Tuff™ roofing system. Put holes in your roof so it doesn't leak.

What goes down doesn't come up.

We mechanically attach the scrim-reinforced, Hi-Tuff membrane to your roof deck with tough, corrosion-resistant fasteners. Then we cover the fasteners with the next layer of membrane. And then we fuse the two layers together with a hot-air welder. The result is a single, roofwide sheet of rubber.

And because our membrane's made of Hypalon* synthetic rubber, it cures after it's hot-air welded to resist ultraviolet rays, rain, pollution, heat, and cold.

Our operators are now standing by.

If you'd like to know more about the Hi-Tuff roofing system, we'd like to tell you more. So give Paul Genest a call at 413-584-9973. He'll take care of the rest.

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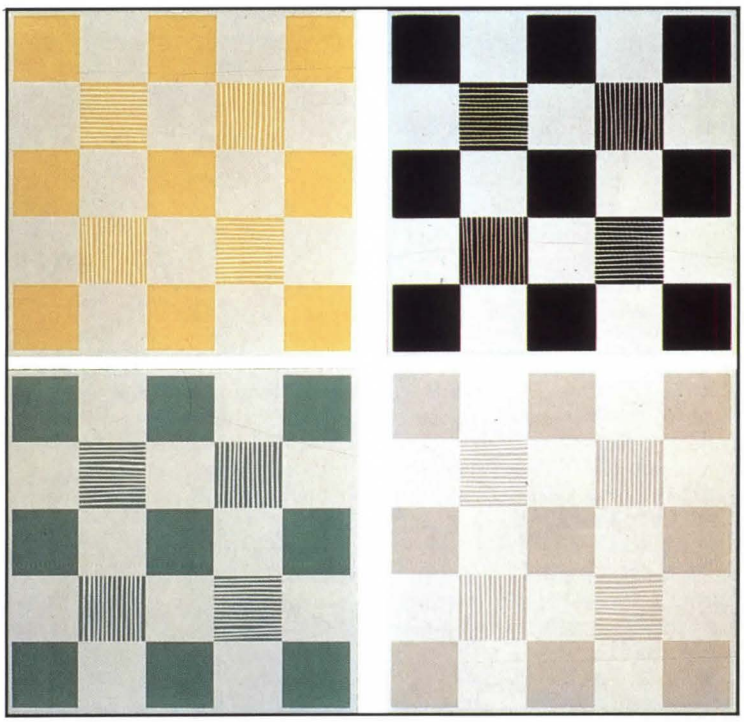
*Hypalon is a registered trademark of DuPont.

Circle **No. 323** on Reader Service Card

STEVENS
Roofing Systems

New Products and Literature

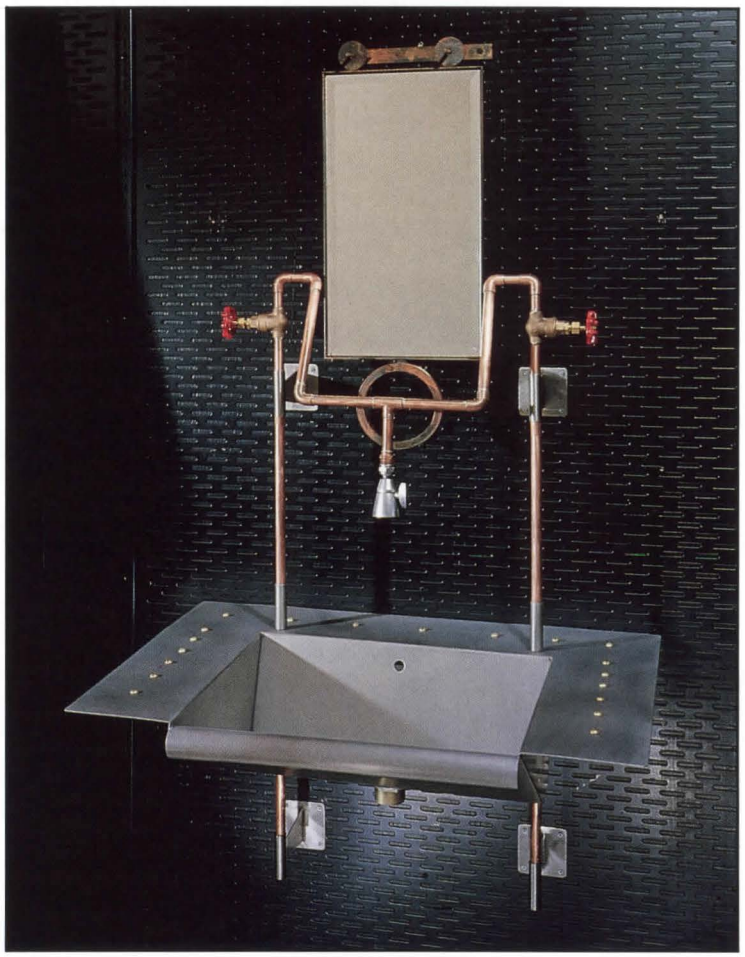
118 **Technics-Related Products**
202 **Products and Literature continued**



Marostica checkered wall tile, by Italian designer Isabel Campagnac, is available in four iridescent foreground colors against a glossy white background. The 8½-inch tile comes in yellow, black, green, and white. Cedit USA.
Circle 100 on reader service card



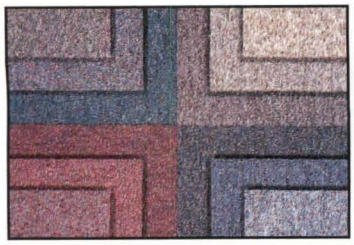
Lever handles and thumb-turns, with a tubular passage latch and a privacy deadbolt that are UL approved, are compatible with the latch and mortise locks of several U.S. manufacturers. Lever handles are either U-shaped or half-circular. Hewi, Inc.
Circle 101 on reader service card



The Zelman washbasin, designed by artist David Zelman, has a stainless steel basin with exposed copper and brass fittings. Adjustable copper tubing, with factory-style knobs and faucet, creates a framework above the wall-mounted basin, which is 22 inches deep and 30 inches wide. The piece is topped with a rectangular mirror. Hastings Tile & Il Bagno Collection.
Circle 103 on reader service card

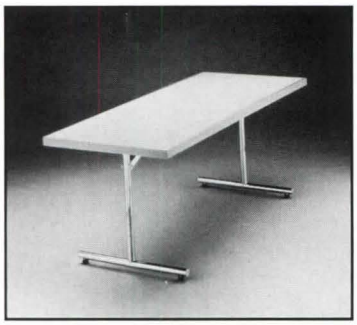


Codeworks eliminates time-consuming code searches. By tying electronically into this database, an architect will receive, within a matter of an hour, a summary of the major state and local code requirements that apply to a particular building. The database covers seven major code categories, including the building, fire, energy, and mechanical and plumbing codes, and will encompass 60 major metropolitan areas by the end of 1988. Codeworks.
Circle 102 on reader service card



Synerpoint™ multicolored loop carpet tile in a pointillistic design combines varying hues with dense texture. The configuration of the two-ply BASF Zeftron® 100 percent nylon yarn helps to hide soil and control static. Synerpoint is available in 18 basic colorways, each composed of 9 complementary colors. Interface Flooring Systems, Inc.
Circle 108 on reader service card

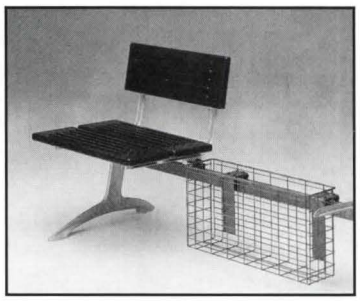
Washroom Equipment 52-page catalog includes Maximum Security Accessories™ for prison bathrooms and public washrooms subject to vandalism. New products include a line of condom vendors, towel dispenser, and waste door for use in countertops, facial tissue dispensers, maximum security clothes hook, and clothes hook strip. Bobrick.
Circle 205 on reader service card



Colorflex tables with a tough, resilient seamless edge stand up to the abuse of being dragged across the floor, gouging with the corner of a serving cart, or banging against another table or wall. Stains wipe away with standard household cleaners. There are 23 colors and 10 different edge configurations. Johnson Industries, Inc.
Circle 109 on reader service card

Signs made with Avonite™ have the look of granite or marble at a greatly reduced weight and affordable cost. Several edge treatments and shapes are available, and the use of logos and designs offers a variety of possibilities. Best Manufacturing Company.
Circle 110 on reader service card

Cypher Lock combines the high security of a combination lock with the convenience of a key. There is no keyhole in the lock face. Key and lock mate by means of a wide range of matching design configurations and communicate by electromagnetic forces. Hundreds of thousands of codes and combinations render the lock pick proof. It is master keyable, and weather and corrosion proof. The lock is available in stainless steel, brass, bronze, aluminum, and titanium. Guard-Nut, Inc.
Circle 111 on reader service card

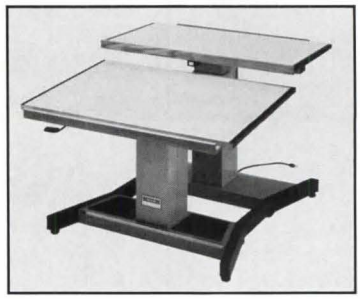


Eor Primo seating, designed by Vincenzo Didato, can be ganged, or used individually. Padding is black polyurethane, bar is painted hammered metal, and legs are die-cast aluminum. Seats can be separated by painted wood support tops or small baskets with black painted metal frame. Alacta.
Circle 112 on reader service card

Pirelli Rubber Flooring, stair treads, and accessories are presented in a 12-page, full-color brochure. It is fully illustrated and includes detailed product descriptions, uses and applications, technical data, color charts, architectural specifications, and installation and maintenance requirements. Jason Industrial, Inc.
Circle 206 on reader service card

Craftsman tiles for commercial and residential use feature softly formed edges and corners, irregular surfaces, and subtle color variations within the tile glaze. They are suitable for interior floors subject to heavy traffic and for exterior horizontal and vertical surfaces. There are ten standard colors. Trim shapes and accent pieces are available. Ludowici Stoneware Company.
Circle 113 on reader service card

Preformed Metal brochure describes and illustrates several series of roofs, walls, mansards and soffits. There are selection charts and details of various configurations. The 16-page brochure discusses materials and coatings and shows Kynar 500® and Dexstar 850® standard colors available. Metal Building Components, Inc.
Circle 207 on reader service card



The CAD workstation consists of a dual pedestal power base with two work surfaces: The front work surface tilts, while the rear surface lifts vertically and slides front to back. Movement of the rear pedestal is controlled by a patented glide system that compensates for eccentric loads. Even in extreme forward shelf position, the overall balance of the table is maintained. Mayline Company, Inc.
Circle 114 on reader service card

Insulated glass Alpenglass SUPER-E™ is fabricated with Heat Mirror™. Heat Mirror is a clear, wavelength-selective coating suspended midway between inner and outer lights. It allows light to pass while reflecting heat back to its source—to the inside in winter and to the outside in summer. Two air spaces improve the insulating value of the glass. Alpen, Inc.
Circle 115 on reader service card



Kitchen range hoods from Denmark are available in satin brushed stainless steel (shown), mirror finish solid copper and gloss white, matte black, or custom-color enameled steel. The hoods, formed from solid metal plates, are fusion welded, then polished to remove any trace of joints or seams. Abbaka.
Circle 116 on reader service card

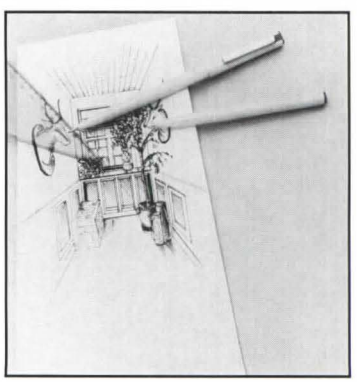
Corrosion-resistant fiberglass products and structural systems are featured in a 28-page catalog, 252A. It introduces a new line of pultruded fiberglass grating and expands on the original line of molded grating. Illustrations in color show 12 different structural applications, as well as platform, stairway, handrail, and safety-ladder applications. Fibergrate Corporation.
Circle 208 on reader service card

Wood windows and patio doors brochure describes and illustrates casement, double-hung, bow, bay, awning, and glider windows, and custom shapes. There are also sliding and swinging patio doors. Standard and HiPro4™ high-performance insulating glass lights are available. Vynalum™ bonded vinyl and aluminum exterior cladding is optional. Vetter Manufacturing.
Circle 209 on reader service card



Lead-Plastic x-ray room shielding, Clear-Pb®, combines light transmission with radiation shielding. Prefabricated modular barriers and windows are used in x-ray and special procedures rooms. Clear-Pb is available in 0.3 to 1.5 mm lead equivalencies and sizes up to 6′ x 8′. Nuclear Associates.
Circle 117 on reader service card

Architectural granite brochure discusses the advantages of using granite and illustrates a series of buildings on which it was used. There is also a page of details showing typical corner, anchor, wall sections, fastening for floor-to-floor panels, steps, and paving. Rock of Ages Corp.
Circle 210 on reader service card



The Design Detailing Pen with a superfine point features a 0.3 mm extended tip and is ideal for use with rulers, T-squares, and other drafting equipment. Each pen has a color-coded inner seal that matches the ink color. There are 12 colors available. Eberhard Faber, Inc.
Circle 118 on reader service card
(continued on page 204)

We'll give you 6½ acres...

in Suffolk County, Long Island, New York

Why?

As a location to design a unique and lasting memorial to all Vietnam veterans. This is an open competition with a top award of $15,000.

Can you transform 6½ acres into a memorial that will last for generations to come? If the answer is yes, write for details today.

Fact Sheet • Suffolk County Vietnam Veterans Memorial Commission
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Suffolk County Vietnam Veterans Memorial Commission

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Restoration takes a giant leap backward.

Return with us to the mid-1800's. The first thing you'll note—other than the fact your clothes seem out of fashion—is the new "Dutch Lap" siding everyone's raving about.

"I wish someone could capture that elegant look in smooth, low-gloss, maintenance-free, premium vinyl," you probably muse.

Fret not. We have.

3" Cumberland Mill and 4½" Stockbridge Dutch Lap styles are now part of the Restoration Collection® of new—yet historically-inspired—siding styles from Wolverine.

Sure, it's taken over a hundred years. But today you can get more information on the entire Restoration Collection by calling, toll-free: 1-800-521-9020. Talk about progress!



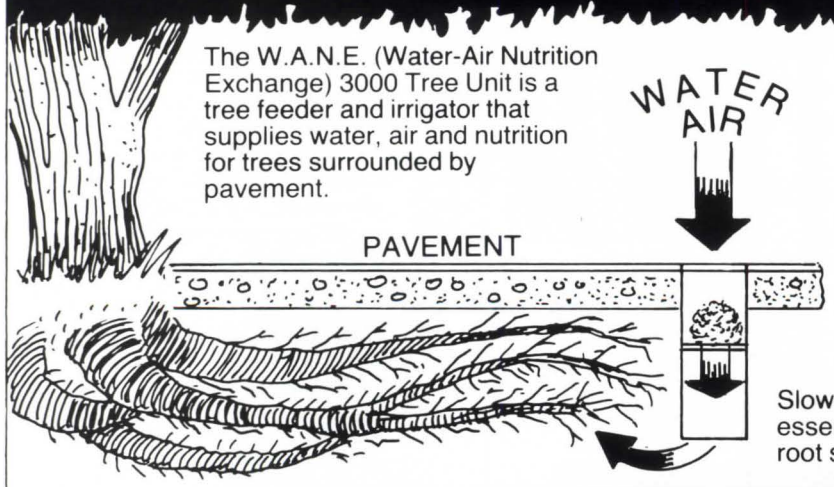
More styles, more options, more ways to make your building your own.

Wolverine Technologies

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NOW-YOU CAN HAVE LARGE BEAUTIFUL TREES IN A PAVED AREA.

The W.A.N.E. (Water-Air Nutrition Exchange) 3000 Tree Unit is a tree feeder and irrigator that supplies water, air and nutrition for trees surrounded by pavement.



The W.A.N.E. 3000 Tree Unit can be installed in any medium such as asphalt, cement, tile or brick to protect existing trees or new trees that are to be developed.

Send for Free BROCHURE
Architectural Specs and price list

WANE 3000 Unit, Handle Fertilizer



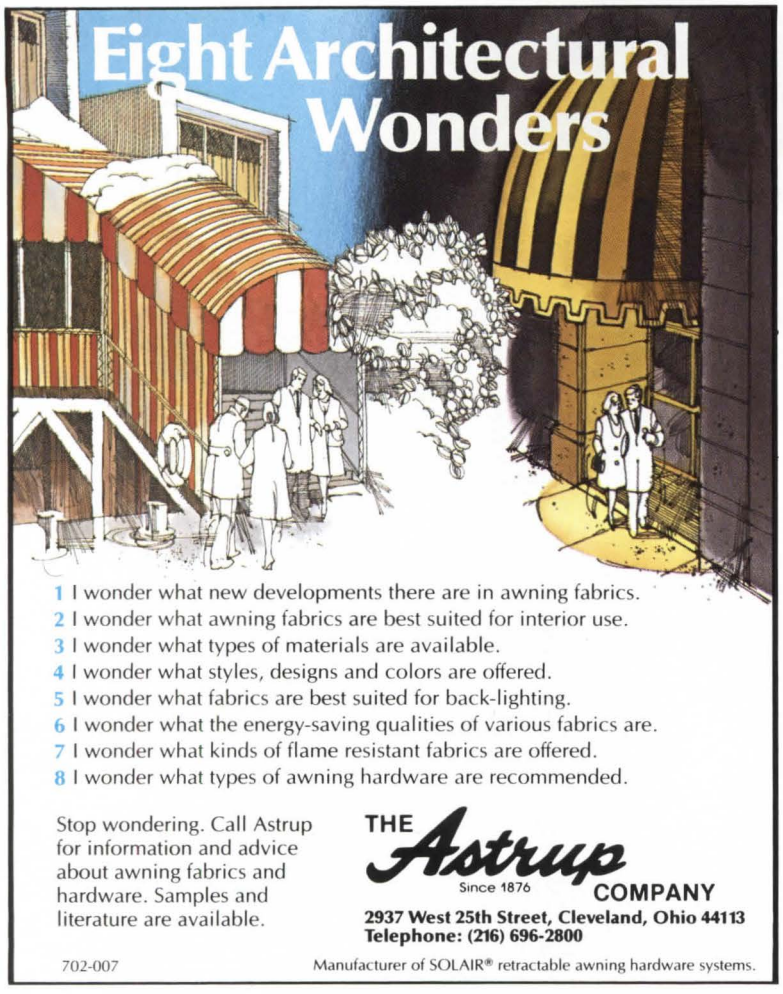
Slow-release fertilizer sends essential nutrients to the tree's root system.

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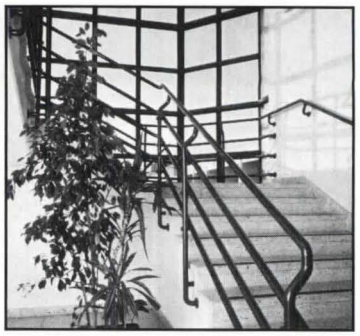


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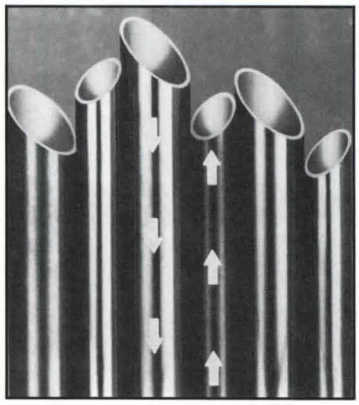
Circle **No. 319** on Reader Service Card

(continued from page 202)



Custom railing, for indoor and outdoor commercial and residential installations, is made of tubular, nylon-coated steel that is warm to the touch, easy to maintain, and strong. The railings are suitable for handrails, safety rails, or curtain rods in schools, hospitals, offices, and residences. They are available in 12 colors and coordinate with other company products including shelves, handles, grab bars, and locking systems. Normbau, Inc.
Circle 119 on reader service card

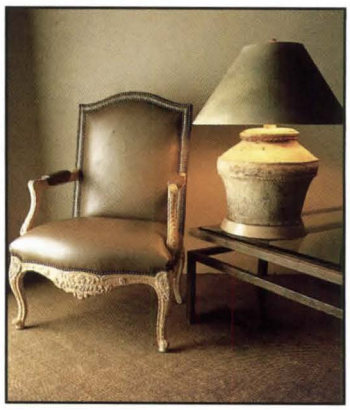
Vista metal parallel beams can be installed, using an adapter, over an existing T-bar ceiling. Neither ceiling panels nor most light fixtures and air diffusers need to be replaced to accommodate the ceiling. A four-page brochure explains and illustrates the system and its installation. Chicago Metallic Corp.
Circle 211 on reader service card



Colored stainless steel pipes are a solution to identification problems. Colors range from black through bronze, green, blue, red, gold, and champagne. The color is part of the material, created by application of a thin film of chrome oxide. Prismatic Div., B&M Finishers.
Circle 120 on reader service card

Marazzi Enduro® ceramic tile, using a process called Firestream®, develops exceptional glaze hardness and durability. Besides being thick, the glazed layer is extremely compact, hard, and rigidly fused to the tile body, offering exceptional abrasion resistance. It is available in three series: Matt, in four earth-tone colors; and Ocean and Gloss in six colors each. American Marazzi Tile.
Circle 121 on reader service card

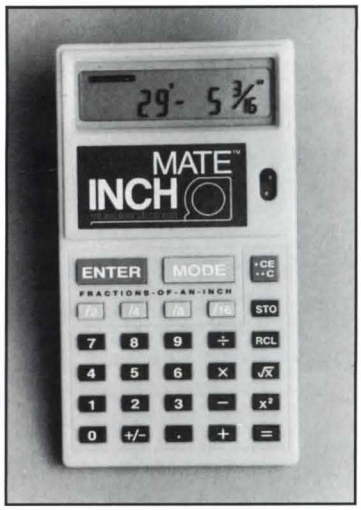
Light standards for outdoor lighting are treated to resist decay and insect damage. They can accommodate top, side, or arm-mounted luminaires. The standards are made from Southern Yellow Pine. They can be ordered at a maximum height of 48 feet and from 4 inches to 10 inches square. Scholl Lumber.
Circle 122 on reader service card



The 1-2-3-chair is a traditional European style. It is upholstered in taupe leather fastened with pewter nailheads and has a bleached and pickled frame. It is shown with a Philippine Pot Lamp and a Tokyo iron-base table with glass top. Gina B.
Circle 123 on reader service card

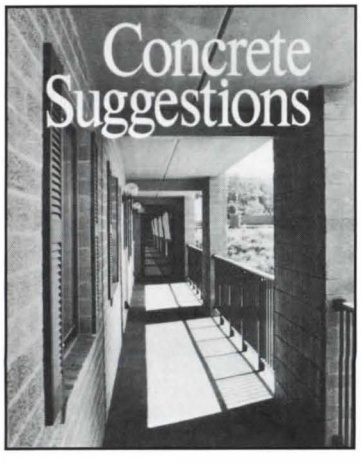
Commercial window product and technical catalog shows a dramatic range of commercial installations. There are conservative and stylish offices; curtainwall and creative window combinations; standard and custom-sized units; and new construction and renovation. Technical data include detail drawings, size tables, specifications, and performance ratings. Andersen Corporation.
Circle 212 on reader service card

TIR Tubular Light Pipe is intended for outdoor building highlighting. Pipe diameters are four inches and six inches, and standard length is a maximum of 20 feet. Weatherproof luminaires are sealed against rain, dust, and snow. Color change is achieved by insertion of color filters in a slot at luminaire. A six-page folder discusses the light and illustrates several applications. TIR Systems, Ltd.
Circle 213 on reader service card



Inch-Mate™ pocket-sized electronic calculator calculates feet/inch/fraction dimensions. Measurements are entered exactly as they would be written. The calculator solves problems in a fraction of the time it would take to convert to lowest common denominator, add up the numbers, and reduce the result. It also converts instantly to decimal feet or meters. Digitool Corporation.
Circle 124 on reader service card

Natural linoleum with the look of Carrara marble takes any approved cleaning system directly. Marmoleum comes in 33 colors, Linoflex® in 15 complementary colors and two sizes: 12-inch and 24-inch squares. There is preformed coved skirting in all colors. An eight-page brochure discusses performance benefits, specifications, and installation. Forbo North America.
Circle 214 on reader service card



Concrete Suggestions compares the life-cycle costs of concrete masonry and hollow core buildings with other types of construction, particularly wood-frame structures. Construction costs are competitive, and maintenance costs are substantially reduced, says the report. The inherent fire resistance of concrete enhances the profitability of these structures. The Joint Committee for Promotion of Concrete in Low Rise Multihousing.
Circle 215 on reader service card



Steel and wood industrial doors are shown in a ten-page catalog that gives complete specifications for the full line. Hardware, operators, and controls are available for slide, swing, four-fold, and vertical lift installations. All doors can be furnished with louvers, pass doors, and vision panels. Richards-Wilcox.
Circle 216 on reader service card

Rhodorsil® silicone sealants are described in a 16-page brochure. There are sealants for construction, structural glazing, glazing, and insulated glazing and for sanitary applications. The brochure includes a sealant/substrate guide. Rhône-Poulenc.
Circle 217 on reader service card

Parking lot layout templates are a guide to those who specify paving, sealing, and striping of commercial and industrial parking areas. The templates are offered by the manufacturer of Jennite® pavement sealer. Neyra Industries.
Circle 218 on reader service card

In-floor raceway Cell-Duct™ flat cable feeder is designed to feed undercarpet flat conductor cable. A 21-page brochure lists many of the product's features and benefits compared with other underfloor duct and raceway systems. Specifications and structural considerations are included. Square D Company.
Circle 219 on reader service card

Mortar and grout, S-4000 Furan, is effective for use where chemical resistance of floors is important. A two-part system, it is used for setting floor brick, quarry tile, and paver tile. S-4000 is resistant to most nonoxidizing acids, alkali, oils, solvents, greases, salts, detergents, and steam cleaning up to 350 degrees. Summitville Tiles, Inc.
Circle 125 on reader service card
(continued on page 206)

Restoration is on a roll.

The origins of the "rolled" profile that inspired Restoration® Monterey premium vinyl siding are lost in antiquity. Or in our files.

We do know we've seen its unique shadowline on 19th-century homes from New York to California. And we know we like it.

More to the point, now you know Monterey rolled-edge, 3″ siding is part of the new Restoration Collection®. Which means it's the only rolled panel with the smooth, low-gloss finish that makes Restoration such a good idea in the first place.

Or, if you prefer 3″ premium vinyl panels in the traditional clapboard style (hold the roll), feel free to choose Restoration Cambridge.



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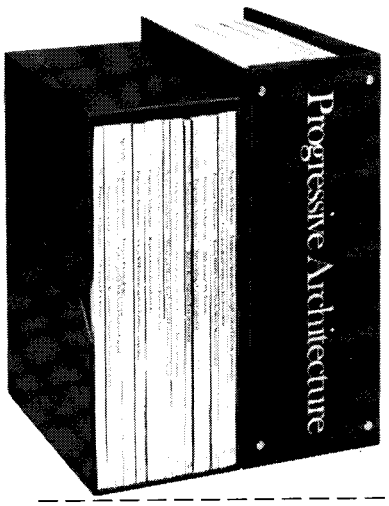
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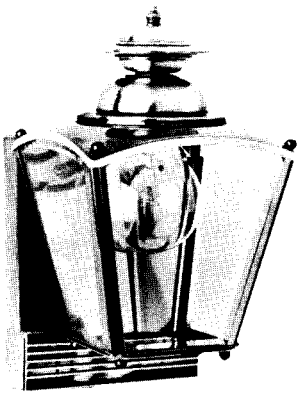
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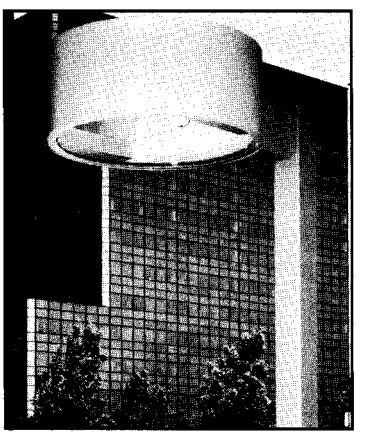
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Allow 4-6 weeks delivery.

(continued from page 205)



Motion-controlled security light, The SmartLantern, is a solid brass and beveled glass fixture. It has an integral sensor that detects the presence of people or cars up to 50 feet away and turns on outdoor lights instantly. It is adjustable to turn off from 3 seconds up to 20 minutes later. There is a manual override. RAB Electric Manufacturing Company, Inc.
Circle 126 on reader service card

Texsol synthetic textile fibers, woven into sand or building soil, can be used as a three-dimensional reinforcement material that can take the place of concrete embankments. It is cheaper to use than concrete and produces hill slopes of up to 60 degrees. Texsol is woven into soil mixtures at the construction site by mechanical, pneumatic, or hydraulic methods. French Technology Press Office.
Circle 127 on reader service card



Round area lighting fixture Series 82 has a spun aluminum housing. The ballast is directly mounted to the housing, providing maximum heat dissipation and prolonging ballast life. Optical systems are modified Type III light distribution or sharp cut-off forward throw. Guardian Light Company.
Circle 128 on reader service card

Exterior insulation and finish systems ThoroWall A and ThoroWall H are cost-effective means of insulating and encapsulating a new or renovated structure. The systems can be applied directly to concrete, masonry, stucco, exterior gypsum sheathing, and exterior-grade plywood. There are several textures and 16 colors. Thoro System Products.
Circle 129 on reader service card

Modular brick panels are made from ½-inch kiln-fired clay brick and high-strength polymer concrete. Each panel contains 54 bricks and two workers, using hand tools and a drill, can install 100 panels per day. They can be used for new construction or renovations. Mod-Form, Inc.
Circle 130 on reader service card



The Eiffel Tower Chair, designed by Jacques Esclasse for the Jules Verne restaurant in the Eiffel Tower, is produced in France by Alumine. The chair, which is available in the U.S., is also offered as a bar stool. The sand-cast aluminum chair and stool can be specified in polished or lacquered finishes. Interna Designs U.S.A.
Circle 131 on reader service card

Passage and privacy locksets, The Atrium Lock®, are available with a polished or antique brass finish. The privacy version for bedrooms and baths automatically releases the locking mechanism when it is activated from the inside. Knob-style locksets can be replaced with The Atrium Lock, which is sized to cover up old paint rings. The Atrium Door and Window Corporation.
Circle 132 on reader service card

Post-top or wall-mounted luminaire, vandal-resistant Perimaliter®, is illustrated in a four-page brochure. The brochure includes specifications, performance criteria, luminaire accessories, dimensions, and photometric data. Hubbell Lighting Division.
Circle 220 on reader service card

Residential bathroom accessories are shown in full color in a 40-page catalog. Lines include clear Lucite, oak, antique and polished brass, polished chrome, stainless steel, and ceramics. Towel bars and rings, soap and tissue holders, electric switch plates, shower rods, grab bars, towel shelves, and other accessories are shown and described. Franklin Brass Mfg. Co.
Circle 221 on reader service card



A contemporary handleset of solid brass is available in most popular architectural finishes and 20 keyways, including KABA high security. Features include a heavy-duty patented deadlock with a one-inch throw, hardened steel rods in the bolt, interlocking bolt and housing, and a heavy-duty strike. Lori Corporation.
Circle 133 on reader service card

Concrete interlocking paving stones are unaffected by the extremes of heat and frost. They are available in a variety of shapes and colors for industrial, commercial, and heavy-duty applications. A four-color, four-page brochure illustrates the paving stones in use and provides installation and application information. Uni-Group North America.
Circle 222 on reader service card

Modular furniture components make up the Master Series by Afra and Tobia Scarpa. There are tables, desks, and containers with a specific system of interconnections. Cabinet doors and desk tops are walnut, Indian rosewood, and natural oak; table edges and furniture sides are covered in leather. Unifor, Inc.
Circle 134 on reader service card

Poweramp hydraulic dock levelers, truck levelers, and truck restraining devices are described in a four-color, 10-page catalog. Capacities range from 10,000 lb to 60,000 lb of dynamic load. Specifications on all equipment are included in the catalog. Systems, Inc.
Circle 223 on reader service card

Great Bench Series AE6000 has been expanded to include wood bench slabs, new concrete elements and four new concrete colors. They can be combined in indoor and outdoor seating arrangements with matching planters, litter receptacles, and smoking urns. Forms + Surfaces.
Circle 135 on reader service card

Stains formulated for pressure-treated wood answer many problems that arise in coloring the flat green shading typical of such wood. These stains can be applied within 14 to 20 days so long as the wood is dry. Colors include brown, gray, light green, redwood, and a colorless product. Samuel Cabot, Inc.
Circle 136 on reader service card

Ceravision™ tile is suitable for countertops, walls, and light-traffic flooring. There are eight soft, pale colors. A variety of trim shapes are available. Huntington/Pacific Ceramics.
Circle 137 on reader service card

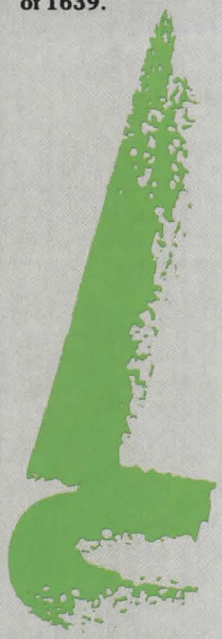
Basins of vitreous china are available in three self-rimming shapes: rectangular, octagonal, and oval. All are available in a selection of colors and all have the option of gold or platinum trim lines. Kallista, Inc.
Circle 138 on reader service card

Building Materials

Major materials suppliers for buildings that are featured this month as they were furnished to P/A by the architects.

Herman Miller showroom, Long Island City, N.Y. (p. 94). *Architect: Gwathmey Siegel & Associates, New York.* Insulated perimeter glass: Kalwall. Entrance door: PPG. Carpet tiles: Milliken. Rubber flooring: Flexco. Drywall: U.S. Gypsum. Crystallized glass panels: Neoparium. Paint: Pratt and Lambert, Benjamin Moore. Hardware: Stanley. Locksets: Schlage. Door closers: LCN, Rixson. Kitchen equipment: KitchenAid, GE, Roper. Lighting: Linear Lighting (custom fluorescent), Lightolier, Edison Price, Zumtobel, Glashutte, Limburg, C.J. Lighting. Flatwire: AMP. Plumbing fixtures: American Standard. Flush valves: Sloan. Bathroom accessories: Bobrick. Heat pumps: Mammoth. Custom steel handrails: Adler Nielsen. Custom millwork: Hird Blaker. Solar shades: Mecho Shade. Landscape panel fabric: Jack Lenor Larsen. Projection screen: Da-Lite.

Restoration recalls the high-tech look of 1639.



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THE SAVANNAH COLLEGE OF ART AND DESIGN, School of Building Arts seeks candidates to fill five (5) new full-time faculty positions in its departments of Architecture, Historic Preservation and Interior Design beginning September, 1988.

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Please send Curriculum Vitae, with names, addresses and phone numbers of at least 3 professional references, slide portfolio of professional work and cover letter by April 15, 1988 to: Robert G. Scheren, Dean, School of Building Arts, The Savannah College of Art and Design, 26 West Harris Street, Savannah, GA 31401. SCAD is an Equal Opportunity/ Affirmative Action Employer. Women and minorities are encouraged to apply.

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Review of applications will begin March 1, 1988. Applications will be accepted until the positions are filled.

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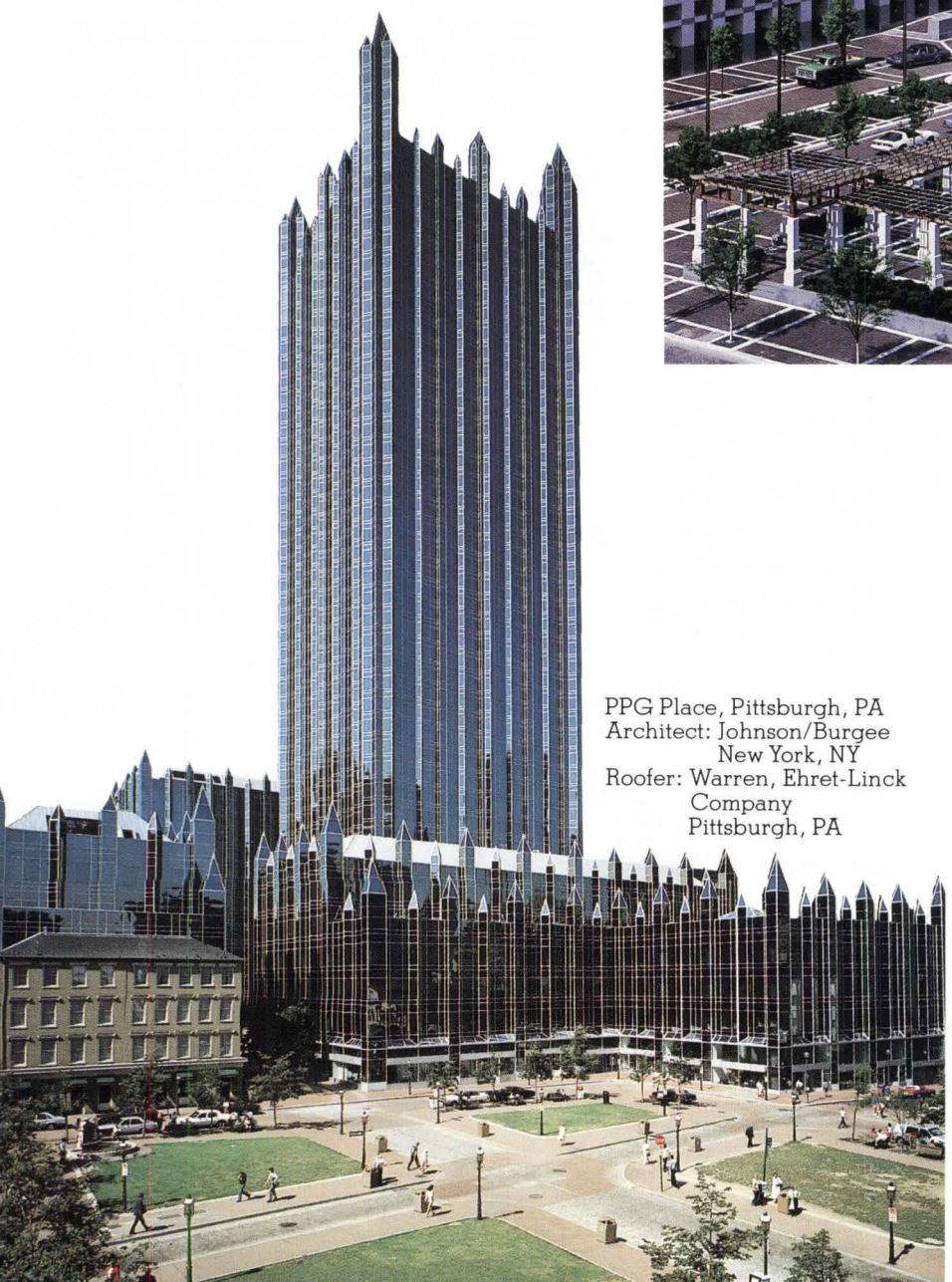
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Roofer: Imbus Roofing Company,
Cold Spring, KY



PPG Place, Pittsburgh, PA
Architect: Johnson/Burgee
New York, NY
Roofer: Warren, Ehret-Linck
Company
Pittsburgh, PA

There are many striking examples of how TCS (terne-coated stainless) has become an integral part of a total architectural concept...expressed so beautifully as roofs on the Procter & Gamble building and on the many roofs of PPG Place. Weathering to a predictable warm, natural gray, TCS blends quietly with the buildings' architectural expression.

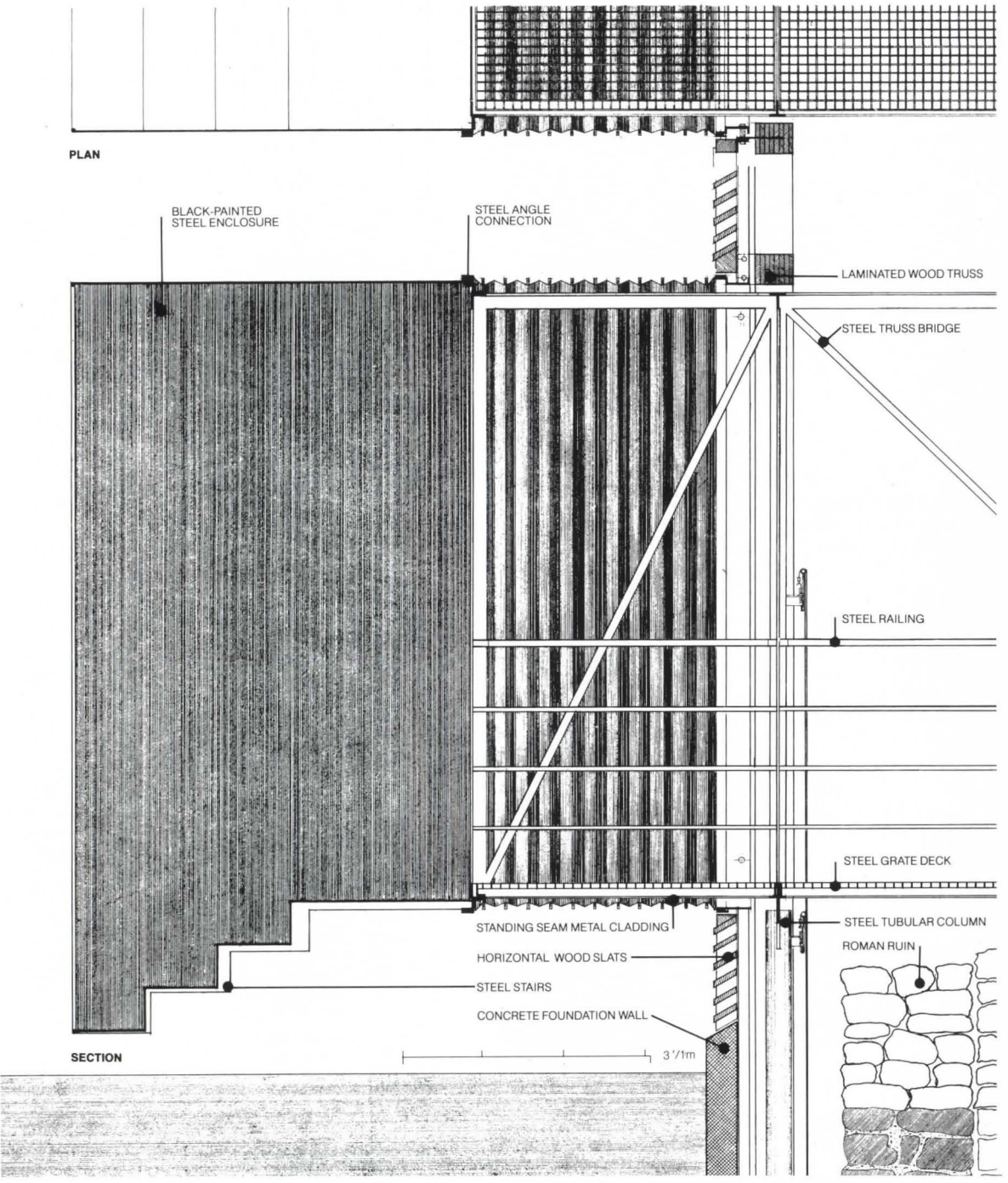
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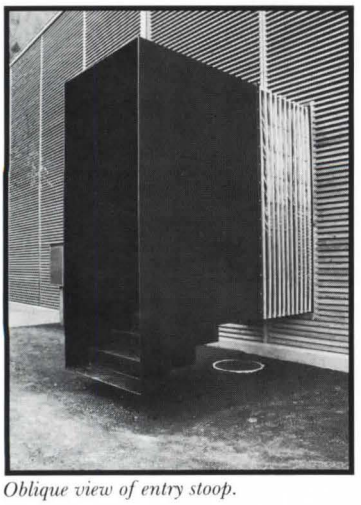
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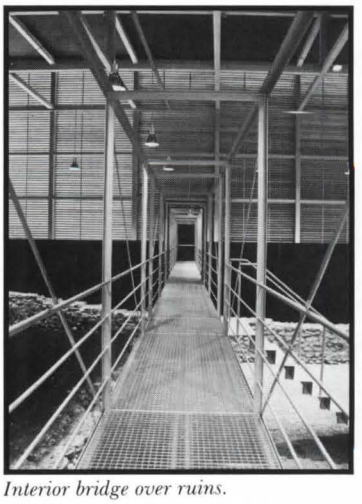
Entry Stoop
Enclosure over Roman Ruins
Chur, Switzerland

Featured in the February P/A for its wood details (p. 93), this enclosure over a set of Roman foundations in Chur, Switzerland, designed by Zumthor Architekturburo, also contains some elegant steel elements. A truss steel bridge extends over the foundations and is extended at one end by way of a fully enclosed steel entry stoop. The stoop was fabricated of sheet steel and bent and welded into its final shape. Painted black, the steel has a smooth surface except for the raised pattern stamped into the steel of the stair treads to improve traction. What is most striking about the stoop is its cantilever; connected to the truss bridge inside the building, the stoop floats above the ground in a delightful play of a heavy material, whose weight is emphasized by its black color, against a form that looks lighter-than-air.

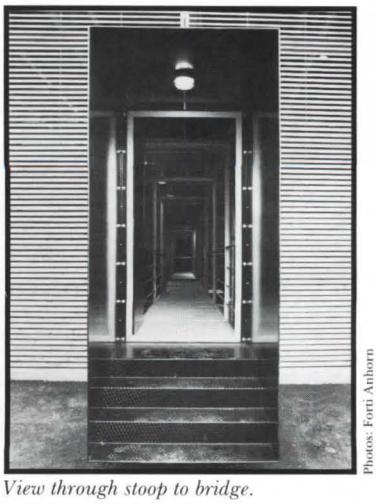
Major Materials: *Steel: Paul Tobler AG.*



Oblique view of entry stoop.



Interior bridge over ruins.



View through stoop to bridge.

Photos: Forti Ahlborn

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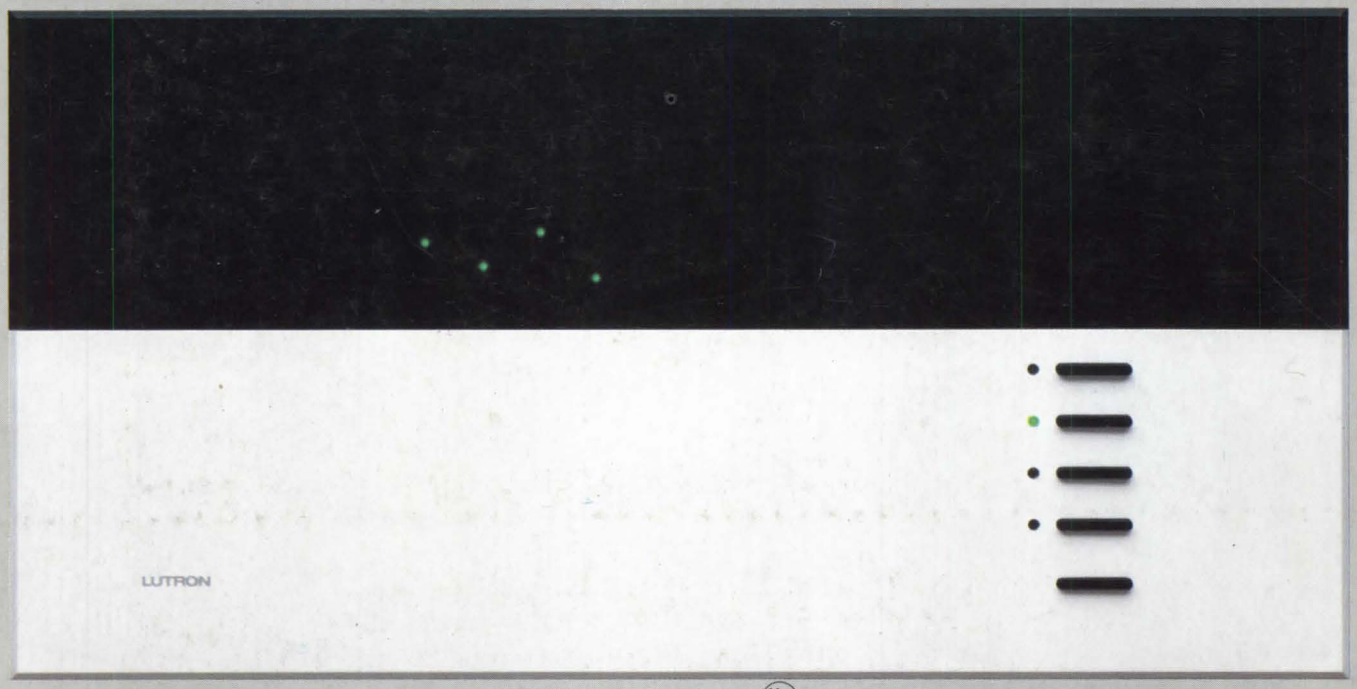
For additional information see Sweet's Catalog File: "General Building and Renovation," or call 800-447-1982 for nearest Kentile Sales Office.

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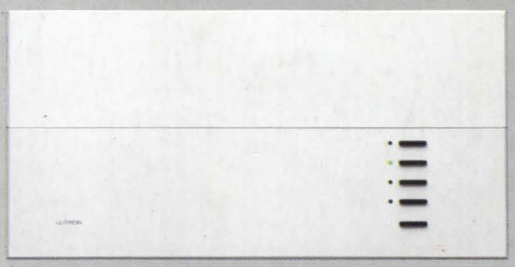
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Thin profile



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